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SCIENCE IN STORY.

SAMMY TUBBS,

THE BOY DOCTOR,

AND

S P O N S I E,

THE TROUBLESOME MONKEY.

BY

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AUTHOR OF "PLAIN HOME TALK," "MEDICAL COMMON SENSE," ETC



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PART FIRST.



SAMMY THE BABY.



A WORD FOR THE OLDER ONES.

DURING the past ten or fifteen years the author has been repeatedly requested by many of the readers of his publications, to prepare something, in his simple style, suitable for children, treating of anatomy and physiology. Not a few writers of ability having already issued works for the young relating to the same subjects, it has been a serious question in his mind whether any effort on his part in this direction could be attended with better success. The perplexing obstacle in the way of getting up anything attractive to the young, in this field of literature, lies in the knotty fact that technical terms must, unavoidably, be used, more or less, in imparting information in regard to the mechanism of the body and the relations which the various organs and parts sustain to each other. To be understood, in speaking of any thing, the name which science or custom has applied thereto must be employed to





distinguish it from another. Unfortunately, the names of the various parts of the human system are difficult for the juvenile mind to comprehend or the uneducated tongue to articulate, and, thus far, books of anatomy and physiology for children have been justly considered dry reading even for adults outside of the learned professions.

In reflecting upon this subject it occurred to the mind of the author that if, in some way, such information could be ingeniously concealed in an acceptable garb, as the pill-venders coat their nauseous drugs with an envelope of sugar, the desired object might be attained. In view of the prevailing passion for works of fiction the suggestion naturally obtruded itself that the dry studies under consideration might be woven into a story in such a way that the latter should constitute, as it were, the warp, while the information should compose the woof, of the narrative. Acting upon this thought, the writer has had the temerity to commence a series upon this plan, in spite of the fact that he has never been a reader nor much of an admirer of popular tales





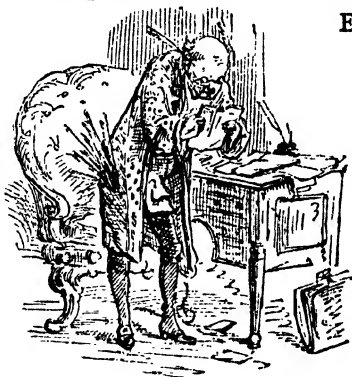
or novels; has, indeed, never read but one work of fiction in his life, and that one in childhood. Perceiving, however, no other way to take hold of the difficult task, this venturesome step has been taken. If it fail, the author can only console himself with the reflection that he has done the best he could with limited leisure to satisfy those friends who have flattered him with the idea that he was peculiarly fitted for the work of presenting anatomical and physiological knowledge in a manner that would captivate the youthful mind; should it succeed, knowing, as all of us do, the instinctive power for criticism of the average child of civilized life, and his intuitive ability to distinguish what is really humorous from what is palpably not so, it is not impossible that the series, of which this is the initial volume, may be acceptable to the minds of such busy adults as are too hardly worked in the never-ending treadmill of business-life to spend the leisure they need for mental and physical relaxation in the pursuit of abstruse science as revealed in the technical language of such volumes as only





book-worms and scientists naturally take up. If our children will tolerate the scientific matter for the purpose of following the story, may not older ones, who have never yet studied the wonderful mechanism of their bodies, tolerate the narrative of a novice in the field of fiction, for the knowledge presented in language as free from technicality as the consideration of such subjects will admit? If these two ends *should happen* to be achieved, the author will regard himself as abundantly repaid for his labors in preparing and issuing the series which this preface introduces to an indulgent public.

E. B. F





CHAPTER I.

THE BOY TUBBS.



YOU want to know who Sammy Tubbs is,—of course you do. Well, he is a little colored boy, and I hope you will not think him any the worse for that. If he could have been asked before he was born what color he would rather be, he would have said white, without any doubt, not because our Creator does not like colored boys just as well as white ones, but because God's little and big children have a way of sticking up their noses at each other for some senseless reason.





Sammy was a little slave baby, belonging not only to his black father and mother, but was also owned by a white man in the State of Tennessee, just as your little kitten or dog is owned by you. This was several years ago. He does not belong to any white man now, because the good Mr. Lincoln, while he was President of the United States, set all the slaves free, and Sammy Tubbs' father and mother, and all the rest of the little and big Tubbs, were set free with them. When Sammy's father and mother were permitted to go where they had a mind to, they packed up all their things, including Sammy's rattle, and other toys, which were not many or pretty, and moved to the great city of New York. Mr. Tubbs did white-washing, and Mrs. Tubbs did clothes-washing, while the baby, Sammy, did the crying for the family. Folks who went there to see about getting washing done declared it was a real pleasure to see Sammy cry, because he showed such pretty teeth. And they were pretty—just





as even and glistening as rows of pearls; and these, with the snowy whites of his eyes, made him look beautiful, while his coal-black skin and curly black hair—curling so tightly he could hardly wink his eyes—made him appear oddly enough to those who were only used to seeing white babies. Everybody, indeed, seems to consider a black baby an enjoyable sight, and we have undertaken in the frontispiece to present one in a picture of little Sammy and his very black mother.

Now, in this picture Sammy does not look quite so well as he did when he came to New York with his folks at the age of about two years. But good-looking boys, if the good looks come mainly from being good, are not easily presented in pictures, and you may therefore imagine that Sammy looked prettier than his picture.

Sammy could not always remain a boy. Time, which goes jogging along pretty fast with little folks, and at railroad speed with the older ones, made its changes with Sammy. While the black





Mother Tubbs was working over the wash-tubs, and the equally black Father Tubbs was dipping his white-wash brush into his lime-tubs, black Sammy Tubbs was growing above all wooden tubs, and at the age of nine he left all the tubs, human and wooden, at home, and took a position as door-tender for a good doctor by the name of Hubbs. This was a curious little coincidence, a little boy by the name of Tubbs acting as usher at the door of a physician by the name of Hubbs. But you often see just such funny associations of names on the signs of store-keepers, shoemakers, and so forth. Even the good *Doctor's* name was *Doctor Samuel Hubbs*, while that of his door-boy was eventually to be *Doctor Samuel Tubbs*.



SAMMY TUBBS ON A TUB.





CHAPTER II.

SAMMY RECEIVES A PRESENT.



AMMY had not been long in the house of the good Doctor before he came in possession of a playmate which was neither a white nor a black boy, and whose name was neither Samuel Tubbs, nor Doctor Samuel Hubbs, Dubbs, Grubbs or Nubbs. And what do you suppose it was?

Mrs. Millstone, a patient of the Doctor's, took a great fancy to Sammy the very first time she met him, and as her husband was a sea-captain and on his return voyage from the coast of Africa,





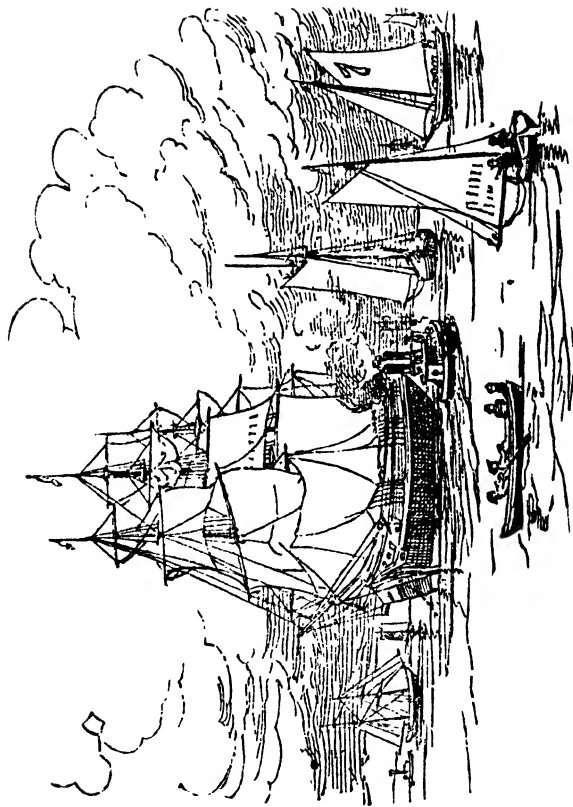
she promised Sammy something, but she did not then herself know what. She knew that her husband always did bring curious things from the far-off countries he visited, and she knew that she would be able to make Sammy a gift which would please him, if it were nothing more than a parrot or bird of some kind.

One fine frosty March morning, within a month after the promise, a ship sailed into the bay and, with a splash of the great anchor, she stopped off Quarantine, as it is called, where officers board vessels to see if anybody is sick with cholera, yellow fever, or other diseases which might spread about and make other people sick. After an examination by the health officers, all was pronounced right, which meant that all on board were well, and all on board included the curious little creature which was to become Sammy's constant companion.

Again, I ask: What do you suppose it was?

Well, the huge iron anchor was again raised, and the beautiful ship, pulled along by a little





**CAPTAIN MILLSTONE'S VESSEL AS IT APPEARED WHEN ANCHORED
OFF QUARANTINE**



puffing tug-boat, soon landed at one of the docks of the East River, and you need not be told that Mrs. Millstone, who had not seen her husband for three long years, was soon on board, for she saw in the morning papers, under the head of shipping news, that her husband's vessel had arrived off Quarantine.

The moment Mrs. Millstone's foot touched the plank which connected the vessel with the dock, the brown weather-beaten face of the captain greeted her anxious eyes. Before a word could be spoken they were embraced in each other's arms, and grateful thanks went up to the kind Providence which had permitted them to meet again after so long a separation. The first audible word that broke from their lips came with a startling screech from Mrs. Millstone, upon whose shoulder an animal had jumped with a force nearly sufficient to have knocked her over, had she not been supported by the strong muscles of her husband's arms. And what do you suppose it was?





The Captain quickly relieved his affrighted wife and laughingly handed the intruder to one of the deck hands. Mrs. Millstone, after recovering herself, said at once that he could not have brought a more acceptable present for a little colored boy she knew than this very little scarecrow, and that Sammy Tubbs should have it. And, once more: What do you suppose it was?

Well, be patient; you will know when Sammy does, for he is not very good at keeping a secret. Sammy, somehow, found out that Capt. Millstone had arrived, and was puzzled to guess what the Captain's wife would have to give him. He was sitting in a chair in the hallway, musing over this matter, and keeping time to his thoughts by a swinging motion of his feet against the rounds of the chair, when the door-bell rang. A rather rough-looking man, with a rocking gait, such as Sammy had pictured in his imagination as peculiar to a sailor, handed him a note directed to "Doctor S. Hubbs, *Present*," and quickly turned





away. "PRESENT!" exclaimed Sammy to himself, for he had learned to read sufficiently to make out this inscription.

"And I wonder," said Sammy to himself, "*it this* is my present?" This was the first letter he had ever seen so addressed. He dared not to open it, as it had the Doctor's name upon it and the Doctor was out. The little boy felt pretty well "down in the mouth," as some people would say, for over an hour, or until the Doctor returned.

"If," thought he to himself, "all that Mrs. Millstone is going to give me can be packed away in this little parcel, she is a fraud!" This word fraud is not a good one, at least not well befitting boys to use in this sense, but he had heard other boys use it, and he thought it just fitted in here.

As he sat with tightly-closed lips and a burning look of disappointment in his eyes, hammering more violently the chair-rounds with his heels, the Doctor made his appearance. In an instant





Sammy thrust the letter into his hand and watched him eagerly as he opened it.

"Is that for me?" nervously inquired Sammy.

"For *you*?" returned the Doctor with a smile.

"Are *you* Doctor Hubbs? No, Sammy," continued the Doctor good naturedly, "I hardly think your correspondence has commenced yet."

Then Sammy told him why he thought it was his letter. At this the Doctor laughed outright, and explained to his little door-boy that it was not an uncommon thing in sending a letter by a messenger to put the word present after the name, meaning that the carrier is present to deliver it, or that the person addressed is present to receive it. In sending it by mail it would, of course, be necessary to put on not only the name, but the post-office and the number of the street or avenue, if directed to a large city, or it would not reach its destination.

Sammy felt relieved of his disappointment, but not of his curiosity. Indeed his curiosity became





almost as painful as his disappointment had been. Poor fellow; he had to go to bed that night in perfect ignorance of what was coming. He tossed about a great deal, did not sleep much, and arose very much earlier than usual in the morning. The Doctor was very much surprised when he came down to his office-rooms, at six o'clock, to find Sammy's work all done and the boy sitting in the hall-chair gazing intently through the cut-glass window of the vestibule door.

Many pulls of the door-knob took place during the forenoon; but the callers were the bearers of sick, pale faces instead of presents. It was nearly one o'clock, after Sammy had crowded down a dinner which he had no appetite to eat, and consequently should not have eaten, when the city express wagon drove up. The expressman alighted with a stir-about business manner peculiar to men of his vocation, and drawing out a huge box, half as tall as himself, tugged away at it until he got it up the steps. He did not have to





ring the bell, for Sammy had the door open and felt like offering to help him, but did not see just how he could get hold.

This box was marked in large letters, "Master Samuel Tubbs, with compliments of Mrs. Millstone." This was the first time Sammy ever saw his name printed even on wood, and for the moment he was as much elated with pride as with the sense of possession. After getting it into the hall he peeped through the slats nailed on the top and saw an animal which he thought was a grayish looking dog. First he thought he would wait for the Doctor before opening it; but it might be an hour or two before the Doctor returned. So Sammy got a chisel from the tool-drawer and impatiently proceeded to pry off the slats. While prying away at the last one, which stuck more tightly than the others, something suddenly sprung from the box, knocking Sammy flat on his back, and bounded up stairs like an affrighted cat. Sammy cautiously gathered himself up, keeping his eyes, which never





showed so much white before, moving around in every direction lest the PRESENT should again knock him down. Bewildered and stunned by the fall, he crept up on his chair and sat there, with his



OPENING THE BOX.

usually curly hair standing out almost straight and sprinkled with straw from the box, while his eyes moved nervously about as if not knowing what would happen next ! He was thoroughly scared.

The Doctor's wife was absent, and even the Irish servants were all out looking at the procession, which can be seen in all large cities on St. Patrick's Day. A happy thought struck the half-crazed brain of the boy : he stepped outside the door and took a position on the doorsteps, taking good care that the door was closed after him.



Greatly to the relief of Sammy, the Doctor returned in less than twenty minutes. Sammy was shivering with cold as the Doctor came up.

"Locked yourself out, Sammy?" interro

gated Doctor Hubbs. "Guess so," grunted Sammy, for he hardly knew how or where to begin to tell him about the present Mrs. Millstone had sent him. After the



SAMMY WAITING.





Doctor opened the door with his night-key, Sammy followed him timidly in and told him what had happened. The red of the little black lips actually whitened as Sammy, shaking with fright and cold, told his story. Doctor Hubbs was always a jolly man, and when he found that Sammy was not hurt, only scared, he laughed so heartily that the present, which had finally taken a position at the head of the stairs to command a full view of what was going on below, scampered away, knocking down a bust of Shakespeare which stood in a niche just back of the place where the strange creature had been standing. Thump—thump—thump, rolled the bust to the bottom of the stairs, breaking off the nose and ears, making the great poet look like a defeated prize-fighter.

The Doctor stopped his merriment and began to look more serious. "Has my patient, Mrs. Millstone, been playing a huge joke upon us?" he inquired of himself. Grasping the poker in one hand he walked cautiously up stairs, Sammy think-





ing it prudent not to follow him. Reaching the top of the second flight he discovered something with eyes roguishly glistening like those of a cat in the dark, perched on the top of a high gas-fixture, and, for the last time: What do you suppose it was?

You have waited long enough, and I will tell you—a MONKEY—that most mischievous of all animals that ever breathed or winked, or wagged a tail, or that had no tail to wag. A monkey! my young readers, an animal which can no more be taught to behave itself than a spoiled child can be made contented and happy. An irrepressible, bouncing, bounding monkey from the Cape Verd Islands.

The Doctor approached the stranger with persuasive and calming words and soon made him feel quite at ease. Sammy's head, with his ears wide open, had all this time remained in the hall-way, with his trembling body and legs behind the door. Hearing the Doctor use familiar language to something or somebody, he ventured from his retreat





and hastened up stairs to where the Doctor was standing. He now for the first time saw the strange looking individual that knocked him over, and as he had seen such animals in his picture



SAMMY'S FIRST PET.

books he was not at a loss to decide as to the real nature of his present.

"What shall we call him?" asked the Doctor, as the monkey and Sammy stood gazing and winking at each other. (Monkeys wink sometimes.





you know) Sammy was ready with a reply. He once had a pet mud-turtle which he called "Sponsie," and the turtle having got away from him a year before when dragging a boat to which he was harnessed for Sammy's amusement, in a mud-puddle, nothing remained but his name, and though there was hardly a trace of a resemblance which even the great naturalist, Mr. Darwin, could discover between the two creatures, he decided to call the monkey Sponsie. This he would do, at least, unless Mrs. Millstone should say that the animal had already some other and better name.

Mrs. Millstone called at the Doctor's that very evening, and as she did not know what the monkey's name had been it was agreed all around that Sponsie was a good one. It will be found in the pages of this little book that S. & S., or in words instead of letters, Sammy and Sponsie became the firm name, as business men call it when they enter into partnership, of a couple of pretty active individuals, and if the Doctor had not been





invariably good natured, he might have presented each of them with a "ticket of leave." But, instead of doing this, he took good care of both and made a good man of Sammy and a—well, tolerably good monkey of Sponsie.



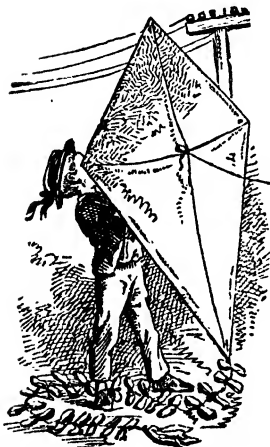
THE FIRM OF B. & S





CHAPTER III.

SAMMY'S KITE AND THE IMPRISONMENT OF SPONSIE.



HE Doctor's phaeton drove up one windy afternoon, and as the Doctor alighted, Sammy sprang out to hold the horse. The animal was very restless in consequence of so many kites flying in all directions, for there is always plenty of wind in March for kite flying.

Presently the stableman came for the horse, and as Sammy entered the house the Doctor addressed him :

"Sammy," he said, "if you will show me how to make a kite I will show you, sometime, how the





human body is made." "That's a go," quickly replied Sammy, although he immediately thought it was not a very courteous way of answering the Doctor. "Will do better next time," thought he to himself. If Sammy knew any one branch of mechanics better than another he did know how to make a good old-fashioned kite—not such little flimsy, weak ones as the city boys generally play with, representing bats, birds and other flying creatures. These look quite pretty, but they are very easily broken, and more than all, they cannot fly very high. Sammy was taught how to make kites by his father, who came from Tennessee, where the Chinese inventions used in the city had not been introduced.

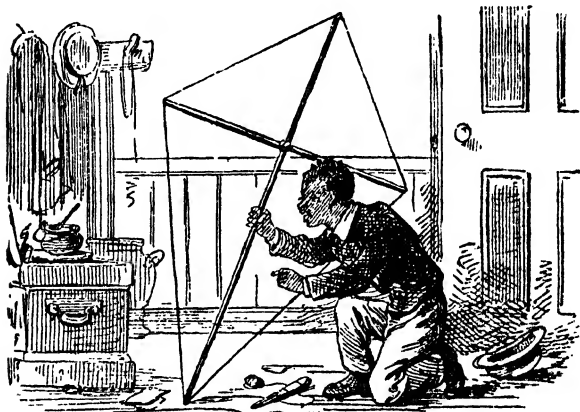
Sammy went to work that very day. He took one hickory stick four feet in length, and after whittling it down to the right size he cut another about three feet in length, and after notching them in the right places, fastened one strongly across the other. Then he cut grooves in the ends of the





sticks and passed a strong piece of twine tightly around the ends, just as you see it in the picture.

At tea-time Sammy informed the Doctor that he had finished the frame of the kite, and after tea he



THE FRAME OF THE KITE.

wanted to show how far he had got with it. So when tea was over both the Doctor and Sammy went up into an attic room where Sammy had placed it; but it was not there! Hearing a racket on top of the house, Sammy raised the scuttle





door. Judge of his surprise to find Sponsie up there, with a string attached to the cross-bow, trying to fly this frame of a kite. He had seen the boys flying kites, and as this had the form of one he had banged it about the roof, trying to get it to rise, till the string around the sticks was hanging in shreds, and his feet were scratched and bleeding from tramping about over broken pieces of tin projecting from a rather dilapidated tin roof. Sponsie was locked up in a dark closet with a sharp rebuke from Sammy, and the kite frame was taken down to the office-room, whither the Doctor had gone in a fit of glee over the trick of the monkey.

"Here," said Sammy, "is only the skeleton of the kite, as Sponsie has broken off the string I had fastened around it."

"You have well said, Sammy, that you have here the *skeleton* of the kite," replied the Doctor. "These sticks make the hard supporting parts of the kite, just as the bones of the human body make the hard supporting parts of the same. You





see you must have something to fasten the strings and paper to, which will sustain them in the shape you want. And therefore it is proper to call this the skeleton of the kite, just as you call the bones of the human system the skeleton of the body. Without your bones you would fall together in a shapeless mass. Without these sticks of the kite, the paper and strings of which the balance is constructed could be rolled up in your hand like a paper ball. So now, Sammy, you have, right here, your first lesson in anatomy."

"Anatomy!" exclaimed Sammy, looking up with surprise; "what do you mean by anatomy?"

"You look into Webster's Dictionary and see for yourself," replied the Doctor, "then you will remember it better."

Sammy flew for the dictionary, and opening it saw that it read thus: "ANATOMY, art of dissecting; science of the structure of animal bodies; a skeleton."

Sammy raised his eyes in perfect bewilderment





after reading these big words. He nervously ran his hands through his curly hair to see if his head was all there. He pinched himself to see if he was dreaming. How, thought he, could the Doctor suppose that he would understand this definition.

He recognized the word skeleton, and knew that the structure of the body meant the way it was made up with its bones and other parts; the words dissection, and science, were words he had only heard without knowing their meaning.

The Doctor saw that the boy was in deep water for him, and took an ingenious way of helping him out.

Said he: "Sammy, we are all boys who are not girls.

"You are one of the little ones and I am one of the grown-up ones. Let a whole lot of little boys, and Sponsie with them, loose in a large room with closets, drawers, desks, boxes and shelves full of curiosities, and then tell them that they are at





liberty to open and take out anything or everything, what a scampering we should see in all directions. Some would be twitching open drawers; some climbing up on shelves; some pulling open boxes, and some hauling up the very boards of the floor—ransacking, in short, everything and everywhere. 12662

“Well, grown-up boys are doing these very things. Our Creator has turned them loose in this great world, and some are reaching up to see, by aid of telescopes, what the sun, moon, and stars are made of, how far away they are from us, and how they move through boundless space. These we call astronomers.

“Some are building vessels and putting out to sea; and to see what? Why, what is beyond our own shores, and bring back valuable things that they find to us. These we call navigators.

“Some are digging up the very earth to see what they can find below the green sod, away down below the hard rocks, hoping to learn





something more than is presently known of the age of the world, and of the materials of which it is made. These we call geologists.

“Some are dissolving substances to see what they are made of, and observe the changes they undergo in places called laboratories. These are called chemists.

“Some are engaged in taking the human body all to pieces to see how and of what it is made. These are called dissectors ; and when they can do it well they may be said to understand the art of dissection.

“Some are studying the formation of the human body very carefully in all its parts while dissecting it, so as to acquire a thorough knowledge of everything which goes to make it complete. These may be called anatomists ; and when they have learned all they can about it, then it can be said that they understand the science of anatomy. Those who study anatomy with the object of seeing how they may safely remove with the knife or other instru-





ment, hopelessly diseased arms or legs, or tumors, or repair bones which are broken, are called surgeons; and when they fully understand this art, we say they are proficient in surgery.

"Some are studying the relations which one part of the body bears to other parts, and learning how we breathe, eat, sleep, walk, run, talk, sing, see, hear, feel and live; and these we call physiologists; and when one has become well acquainted with all these things, we say of him that he understands the science of physiology."

During all this explanation Sammy had not thought of his present, Sponsie, excepting when the Doctor was speaking of letting the boys loose in a room with Sponsie with them. He begged the Doctor to let him go and liberate Sponsie from the dark cell in which he had been imprisoned so long.

On reaching the door of the closet, the noise inside sounded as if a full-grown man was tramping about with big boots on. Boots! Well, there





were boots, and almost every other thing one could think of on that irrepressible monkey. Opening the door, Mr. Sponsie made his appearance at the threshold with a pair of the doctor's old boots



THE LIBERATION OF THE HEARTBROKEN PRISONER!

on his feet, Mrs. Hubbs' cast-off nightcap on his head, a tattered jacket belonging to Sammy about his waist, and what else do you suppose? Why, he had broken open a chest and taken out an old-fashioned watch and chain, and a large chain of





coral beads, with all of which he had decked himself as if about to make his appearance as a star at one of Barnum's monkey shows.

Sammy laughed till his feet went from under him, and he rolled on the floor. The noise brought all the family to the spot; and one of the servants laughed so heartily at the comical spectacle that she dislocated her jaw and was unable to shut her mouth. All but the Doctor thought she was "fooling," and laughed the harder; but he had seen such cases before and treated it as a serious matter. So Sammy was left to "peel" Sponsie, as the cook afterwards called it, and the Doctor and the rest of the family went with the unfortunate servant to the operating-room to put the jaw in place.





CHAPTER IV.

SAMMY THINKS WITHOUT SLEEPING, AND SPONSIE
SLEEPS WITHOUT THINKING.



AMMY went to bed at the close of the incidents related in the previous chapter in a mood anything but sleepy. That little brain of his, hidden by the thick, black, curly hair, growing out of what is called the scalp, and confined by the bones of the head, which are called the skull, was as active as a bumble-bee in a thimble. No one could hear it hum, it is true; but Sammy *felt* it hum in every part of his being.

Never had so many things that both instructed and amused worked their way into his heretofore





almost vacant mind in so few hours. One moment he would shake all over with laughter in thinking of the pranks of Sponsie, and then he would sink into a silence as deep as the darkness about him, while meditating upon what the Doctor had told him of the value and uses of the bones of the body. The active workings of his mind carried him so far into the subject as to lead him to think of the curious construction of the parts which, joined together, made the material body of the boy Sammy Tubbs. Never before had it entered his mind how mysteriously and wonderfully he was made, and, like every body else, who, by any means, gets a first lesson in anatomy and physiology, he was impatient to learn more. With all his attachment for the mischievous monkey he one moment felt that he could see him cut up, or dissected, as the doctors say, in order that he might know better how the machine, as he called it, or the animal organism, as it is properly termed, was constructed. But, quickly taking back this cruel





thought, and putting in the place of it one which suggested that there might be monkeys already dead, whose bodies might be taken apart for his instruction, he mentally begged Sponsie's pardon for even thinking of making a subject of him.

Just at this moment the remark of the Doctor as to what constitutes an anatomist popped into Sammy's mind: "Studying the formation of the human body in all its parts while dissecting it!" Is it quite so, thought Sammy, that the doctors ever cut folks up? This thought made him involuntarily shiver. He had not been in a doctor's establishment long enough to know how the man of medicine came to know so much as he seemed to about the bones of men. He tried the best he could to go to sleep. He counted 1, 2, 3, up to 25, which was as far as he had yet learned, and then went back and repeated. He had heard that people sometimes did this way to go to sleep. He went through the letters of the alphabet over and over again. But all these devices failed.





Sammy had come to know, for the first time why business men, students and scholars could not always go to sleep as soon as their heads touched the pillow. He had never before been in a mood of mind in which he could not stop thinking. He tried one side and then the other—then his back. He turned over the end of his pillow and laid his head on that. He turned the pillow over for the fresh, cool side of it. He straightened out his legs and then after a while would draw them up again. The fact was he could not go to sleep with all these new ideas and questions passing through his mind.

By-and-by the clock struck—1, 2, 3, and he counted the strokes to 11. Wonder, thought he, if the Doctor has gone to bed? This was later than his usual hour, but sometimes he came in late from the sick bed of a patient.

It was quite cold, but Sammy jumped out of bed and crept on tip-toe down the stairs. The gas in the hall was out, but the door of the office was





open, and the light from that shone brightly across the floor. Soon the Doctor, who was putting away things for the night, was astonished to see Sammy's curly head and wide-awake eyes elevated above the long white night-gown standing in the door-way with a bewildered expression, as if he hardly knew whether or not he was doing just the right thing. "What in the world are you doing down here, Sammy?" quickly asked the Doctor; "it is 11 o'clock."

When the boy answered him the Doctor was pleased that his little black office-boy took so much interest in what had been told him in the afternoon. So, notwithstanding the lateness of the hour, he bade Sammy be seated and he would spend a few minutes with him.

"Many thousand years ago," said the Doctor, "the religious prejudices of the people prevented those who wished to study the anatomy of the human body from taking it to pieces or dissecting it. The practice of medicine was almost entirely





in the hands of the priests, and what little knowledge they had of the body they obtained from the dissections of animals.

"The father of medicine, as he was called, and whose name was Hippocrates, lived over 400 years before Christ came into the world. This doctor derived his knowledge of anatomy from the dissections of apes and monkeys."

Sammy's eyes glistened at this last remark, "for," thought he, "I am no worse than the great man who was called the 'father of medicine,' when I thought of cutting up Sponsie."

"A hundred years after this great man," continued the Doctor, "those who were studying anatomy were allowed to dissect or cut up the bodies of friendless dead people, and in some instances to open and look into the modes of action of the internal parts of living criminals, or, in other words, those who had been guilty of great crimes."

"Pretty good use," said Sammy, "to put bad





THE MIDNIGHT INTERVIEW.



men to;" but as he said this he shuddered at the thought.

"The opening of living bodies," replied the Doctor, "seems unnecessarily cruel, whatever their character may be, and it is pleasant to know that this practice was not general. A doctor by the curious name of Herophilus, who lived over 2,000 years ago, is the only anatomist we have any account of who was granted this liberty. The dissections of dead bodies, however," said the Doctor, "seem necessary to give the students of anatomy and medicine a proper knowledge of the bodies which they are to operate on when injured, and give medicine to when sick. Nevertheless, even the dissections of dead human bodies was opposed by the Christians in early times as they were by the pagans. The religion of those strange people called Mahommedans also forbade dissections. The Arabs continued dissections on human bodies to some extent, but for a long period not much attention was given to human





anatomy, except what could be learned from books.

“During the last 400 or 500 years dissections on human bodies have been allowed, with only occasional interruptions, and at this time, in this country, friendless criminals who are hung, and strange sick people dying in the hospitals, whose bodies are not called for by friends, may be had by the doctors, who dissect the bodies, in rooms set apart for that purpose, before large classes of students in our medical colleges.

“There have been instances, of late years, wherein those interested in the progress of medical science have willed their bodies to dissectors. The celebrated anatomist and physiologist, William Byrd Powell, who died a few years ago in Covington, Kentucky, willed his head to Doctor Keckler, of Cincinnati. Some of the friends of Doctor Powell objected to the removal of his head, and there was a lawsuit about it, ending in the triumph of Doctor Keckler, who now has





the skull of the justly-celebrated Powell in his cabinet.

“The liberty now given to examine every part of the dead body is doing a great deal to enable the doctor to take care of the living one, and surgery and medicine are making greater progress than ever before.” As the Doctor said this he picked up his boots, which he had been drawing from his feet while talking, and, handing them to Sammy to blacken in the morning, reminded the boy that it was nearly midnight.

As they were ascending the stairs, the Doctor promised Sammy that if he would now go to bed and go to sleep, he would at some future time give him another interesting lesson in anatomy. Saying this the Doctor turned to his room, and Sammy went to his bed in the attic.

Sammy did not have to wait this time to remove his day-clothes, as he had been standing all this time with the Doctor in his night-gown. Turning into bed, he was frightened





almost out of his wits by finding that somebody was already there! Hastily striking a match and lighting the gas, his momentary alarm was turned into laughter on beholding the inevitable, ir-
pressible and irresponsible Sponsie fast asleep with his head on the pillow, and covered to his neck with the bedclothes like any other important personage who had turned into his own honest couch for a night of innocent slumber. How the animal had got up there from the basement, where he had been shut up for the night, Sammy did not know then, and what is more, he will probably never find out. That must remain one of the mysteries.

When Sammy awakened Sponsie, the little fellow looked up piteously, as much as to say, "Now, don't disturb me, Sammy," and sank back upon his pillow, closing his eyes as if for another nap. Again Sammy gave him a gentle nudge in the shoulder, and again Sponsie raised his sleepy head, and, with eyes only half open





and a whining whistle, looked as if begging to be let alone. Again laying his head back upon the pillow, he took to snoring as innocently and naturally as some little boys do in a country



WAKING SPONSIE.

meeting-house on a warm Sunday afternoon after a morning sermon and a noon Sunday school.

Sammy now took hold of Sponsie roughly and gave him a right smart shaking. But the little fellow, growing more cute, kept his eyes shut





and pretended not to be awakened. At this Sammy's patience was exhausted, and taking Sponsie by the tail he dragged him plump out of bed. Bump, bump, went Sponsie's poor head ; thump, thump, responded the hard floor, for Sammy's room was not carpeted.

It is hardly necessary to say that Sponsie by this time awakened to a realization of the fact that he was an intruder, interloper or "bore." But with the breaking-up of Sponsie's snooze departed the sleep of every other person in the house, for he set up such a shrill chatter, that the Doctor and all the family rushed to the attic to find out what was the matter.

With an air of the utmost injured innocence, Sponsie allowed himself to be returned to the basement, and in a little while all lights were out again and all but the Doctor were asleep, including the injured Sponsie and the thinking Sammy. It was, indeed, surprising how soon after such a disturbance Sammy's loud breath-





ing and Sponsie's childlike snoring fraternally met in the hall just outside the Doctor's door. As the sounds from the two sleepers mingled in harmony,*one could almost imagine that in their sweet dreams the belligerents were kissing and making up. And so musing to himself, it was not long before the good Doctor lost himself in a doze, and it is fair to conclude that the sonorous sound of his breathing joined company with those from the basement and attic, while the angel of the night once more presided over a happy and united family. Sammys usually good disposition had forgotten that it had been irritated, the monkey's tail that it had been pulled, Sponsie's head that it had been bumped, the Doctor's slumbers that they had been disturbed, and the other members of the family that they had been frightened.





CHAPTER V.

SPONSIE GOES A FISHING AND CATCHES A FROG.



EARLY next morning Sponsie was among the missing! What could be the cause of it? Was he miffed at Sammy because he had been pulled out of bed? Monkeys lose their tempers just as unreasonable children do. Perhaps he felt angry, from the tip of his nose to the ever wriggling end of his tail, because he was not allowed to complete his dreams of bliss in Sammy's cozy bed the night before.

But where could the provoking little creature be? When the Doctor came down from his room





he helped Sammy look for him, and did almost everything but turn over the flat flagging stones in the cellar in the search. As Sponsie was neither a worm nor a flat bug these were left undisturbed.

Sammy took to the street to make inquiry. A small boy with his thumb in his mouth, had seen a monkey going in the direction of Mackerelville near the East River. What could it mean? Little folks take it into their heads to leave home sometimes because they disagree with their parents. Was Sponsie up to this kind of tactics, queried Sammy, in his greatly perplexed mind. If so, thought he, the run-away will come home blubbering as loudly as many a naughty boy has done when he has tried the hospitality of strangers for a few hours, for the purpose of putting his parents in a panic about his safety.

With this view of the situation, Sammy returned home to tell the Doctor what he had heard. Doctor Hubbs thought it was mischief the little citizen of the Cape Verd Islands was after rather



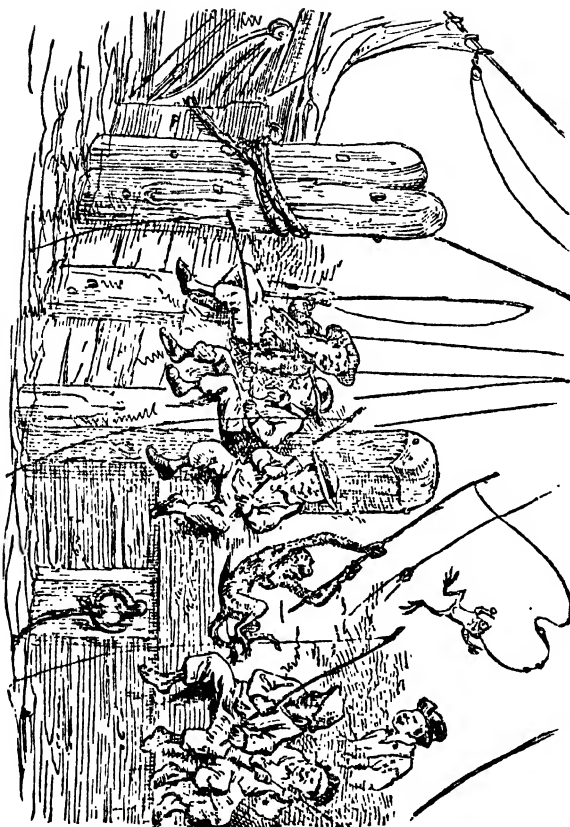


than revenge, and advised Sammy to go in pursuit of the absentee, lest some dishonorable person should pick him up and make a prisoner-pet of him.

By diligent search and inquiry Sammy succeeded in tracing out the route taken by Sponsie, and before he quite reached the East River in the neighborhood of Mackerelville, he espied Sponsie sitting on the dock amid some greatly pleased, dirty-faced urchins who were fishing. Four or five boys were arranged along about as closely as they could sit, with fishing-poles and lines extended, and one of them having some fishing tackle to spare, fitted out Sponsie, who, monkey-like—and, perhaps, also, I might say, child-like—was always ready to do anything he saw anybody else do. Sammy hurried towards the spot, but before he could reach it Sponsie “had a bite,” and in his excitement in raising his pole and line he threw himself over upon his back; and what do you guess Sponsie had on his hook? It is enough to make



SPONSIE'S EXPERIENCE AS A FISHERMAN.





the grave face of an owl go into contortions with laughter to tell you. It was—was—if I must tell you—a FROG!—a kicking, wriggling, sprawling Bull-frog.

The boys broke into a perfect roar of laughter so boisterous, indeed, that Sponsie was frightened, or else he was scared at what he had caught, and picking himself up hastily he betook himself to the mast of a ship fastened to the dock, nor did he stop in his ascent till he reached the cross-trees, from which point of observation and safety he took a nervous survey of the boys and the wriggling frog below!

Sammy had great difficulty in persuading him to come down, and as often as he descended within arm's length of the deck, the mischievous boys would hold up the pole and line with the dangling frog at the end, whereupon Sponsie would scamper back as if pursued by the ghost of his victim. Reaching his retreat on the cross-tree he would chipper back in the most beseeching





manner, as if begging the boys to put his strange-looking fish out of sight, just as he himself would probably like to put it forever out of mind. Poor Sponsie! He had been caught in bad company, and, just like bad children in like circumstances, he had to suffer, but not so much as the poor frog, which had also been caught in bad company, without meaning to be.

Finally a kind-hearted sailor came to Sammy's assistance, and, by his help, Sponsie was captured. With the monkey in one arm—nearly all he could lug—and the big frog in the hand of the other, Sammy set his face homeward, and though Sponsie seemed to dislike the company of the style of fish he had caught, and would only glance at it to look away again quickly, Sammy determined to carry the game home to show the Doctor what the ashamed monkey had been up to.

The whole matter was, of course, regarded as a most laughable joke by the Doctor's family, who surrounded the boy, the monkey and the frog, and





gazed upon the funny group much as country people stare at a menagerie. Sponsie would look most pitifully at the frog, then beseechingly into the faces of Sammy and the by-standers, as much as to ask—"What is to be done about it? I know I am in a pretty pickle, but how am I to get out? and what is to become of my new patent fish? must it forever hereafter go wherever I go, and is it to haunt me during the rest of my existence?" For thus far the fisherman and his game had been inseparable.

The Doctor, with his practical cast of mind, was always ready to turn everything to account. He remarked that as the frog was nearly dead, and could be of no further service to himself or the frog-citizens of the docks of Mackerelville, he would remove the fleshy parts of the animal when dead, and show Sammy his skeleton.

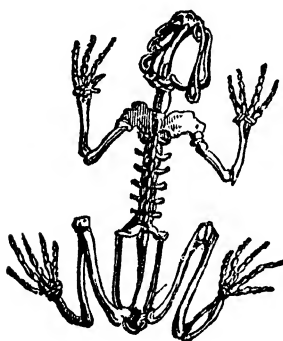
In a few days the skeleton of the frog was nicely prepared and wired, and here it is as you see it in the picture. In presenting it to Sammy





the Doctor called his attention to the fitness of the bones of the feet and legs for springing and hopping, and to the fact that the frog had only the mere rudiments of ribs. The Doctor

also reminded his little pupil of the difficulties with which early anatomists met who were not allowed the dissection of the human body, but were compelled to limit their investigations to the cutting up of animals, whose framework and organs differed more or less from those of the human body.



THE SKELETON OF THE FROG
WHICH SPONSIE CAUGHT.

As Sammy stood looking at the tiny bones of the frog he saw how true it was that these were necessary to give shape to the little creature, for here, indeed, was the frog complete in





figure, while the flesh and other portions of his body which the Doctor had removed were lying in a shapeless mass in the trash-basket. Looking up into the Doctor's genial face, Sammy broke out with: "Now, I *do* want to see the skeleton of a man or a monkey just as soon as you can show it to me. I can not hardly wait."

"You should have said you can hardly wait," replied the Doctor, "and not 'can not hardly wait.' When you become older you will see that your construction of the sentence is not grammatical. Finish your kite, Sammy," continued the Doctor, "and I will open my cabinet of bones for you to look at. I always like to see boys finish what they undertake." Thus concluding, the Doctor took to his phaeton, and Sammy to the sweeping of the doorsteps





CHAPTER VI.

THE KITE COMPLETED—SPONSIE LEARNS A NEW TRICK—THE DOCTOR SHOWS SAMMY THE SKELETONS OF A MAN AND A MONKEY—SPONSIE'S FRIGHT—HE SEEKS THE PROTECTION OF A STUFFED OWL.



FOR several days after the last conversation, Sammy spent all his spare time in working at his kite. He did not care so much for the kite itself as he did for the promised reward for finishing it. Few little white boys could have been more deeply interested in anything of so much value as anatomical study than this little black-faced fellow, born in bondage, reared in the soapy vapors of the wash-





room, and now the hard-working office-boy of a noted physician.

Perseverance, in the end, is generally crowned with success, and after much patient application Sammy had the satisfaction of shutting the blades of his jack-knife, putting away the paste-pot, clearing a basketful of bits of paper and whittlings which had gathered upon the floor, and placing against the wall of the room as handsome a kite as ever came from the hands of an experienced mechanic.

"There," said he to himself, as he planted his erect figure within a few feet of the product of his handiwork, the light from a small attic window falling full upon it, "there you are, Miss Kitibus! I wonder how you can sail! Don't want any double somersaults, old lady!" and here he took up the long graceful tail of the kite, musing to himself,—“I guess that will do; it beats Sponsie's in beauty and length;” and as he said that, if anybody had been present,





he would have seen a well-defined smirk of satisfaction come over the cherry-tinted charcoal lips of our little kite-maker and student of anatomy. And the eyelids, too, parted more than usual, showing the whites of two satisfied eyes, as they moved up and down and then sideways, in viewing the various parts of the kite which was taller than himself.

Turning on his feet to go down stairs he commenced whistling "Yankee Doodle," a not very polite diversion for the house—but all at once stopped right in the middle of it. A new idea struck him. He had paste, paper, and some nice pieces of hickory left from the kite making. "I will," said he to himself, "cut these hickory sticks slender enough to bend into a hoop-like shape, paste paper over them, and teach Sponsie to jump through the hoop" as he had seen dogs, monkeys, men and women do at the circus. He had an hour or more of time that he could spend in his work-room, so, turning back again, he set





himself to the undertaking, and made three hoops. Two of them he covered with newspaper and the other he left uncovered, then taking a banana he put Sponsie on one side of the open hoop and held the banana on the other. Sponsie very naturally jumped through the hoop, and as often as he did so, Sammy let him have a bite of banana. Next he took one of the covered hoops, and, making a small hole through the paper as large as the bottom of a tea-cup, so that Sponsie could just see the banana, held it up before Sponsie. The monkey jumped through, tearing away the paper sufficiently to allow his whole body, tail and all, to pass. Now, thought Sammy, we will see if he will jump through the one that has no hole in it. This will be a test of Sponsie's faith. And we shall see that faith, in some matters of which we can not see the end, has its merited reward. In all the other trials, the banana was in full view of Sponsie's eager eyes. Now the hoop that was closely covered





was to be held up before him, entirely hiding the delicate fruit, of which he wanted still another bite.

Up went the hoop, fully two feet from the



SPONSIE AS A CIRCUS PERFORMER.

floor, and, sure enough, slam, bang through went Sponsie, breaking the paper, which pleased Sammy so much that he this time gave Sponsie a whole banana, and patted him on his head and back till Sponsie began to





imagine himself the smartest monkey on the face of the globe.

Hark! "Sammy, Sammy!" That's the Doctor calling; and the boy left everything in a hurry and scampered down stairs, for Sammy was a diligent lad, and gave the most attentive care to business when called upon. He observed the motto—"Business first, play afterward." This, indeed, was the secret of his success. Boys who are always ready to give up play for work, or rather who make play of work, never fail in the great struggle of life. Sammy did all his regular work without prompting or looking after, and never had to be told a second time to do those things which were out of the usual routine. The natural result of this application was that Sammy became a great and good man, respected by white people as well as by those of his own color.

"Sammy," said the Doctor, as the boy entered the office-room, "take this package down to Mrs.





Biddlewickers, and when you come back I will get out the skeletons I promised to show you Bridget"—that was the cook—"says your kite is finished, though I have not now time to go and see it. Perhaps I may before you return." Sammy regretted this last remark not a little, for he wanted to be present when the Doctor examined it so as to see how he would like it and hear what he had to say. But, his mind turning to the promised view of the skeletons, he thought no more of the kite but hurried away on his errand, and, delivering the parcel, hastened to retrace his steps. Perhaps they were quickened a little by the expectation of seeing what he had long desired to see; but it is only just to say of a boy, who had the elements of success of a business man and a scholar, that he never loitered by the way when sent out by his employer.

While Sammy was gone the Doctor took a hasty peep at the kite, without really looking at it, for his mind was occupied with a plan of a





surprise for Sammy, and he quickly returned to the office-room to carry it out. He took out his two skeletons—one of a man and the other of a chimpanzee—an ape resembling man more than any other of the monkey or ape species—and hung them up in the office where Sammy could not fail to see them as soon as he came in. At first the Doctor put them up just as he took them from the private closet, with face and head-bones all on, but after a moment's reflection he feared that Sammy would be frightened, as these parts of the skeleton are usually the most disagreeable to those who have not familiarized their minds with anatomical study. So the Doctor took off the heads, put them back in the closet and then stepped into the place himself, as it was nearly or quite time for Sammy to return. He wanted to remain in the closet and peep through the crack of the door, left slightly ajar, to see how Sammy would look when he should enter the room in which were the bones of the man and





the ape that, less than twenty years before, had been moving in life as Sammy and Sponsie were then doing. This, to the Doctor, as he sat waiting, was a solemn thought, reminding him of how little real self-satisfying pleasure there is in life, except in doing good to our neighbors and seeking to know and to do right.

There is a noise on the steps! Sammy is coming! Draw the closet door a little closer so that the little anatomist cannot see you, Doctor.

Sammy, entering the room with a quick, careless step, suddenly stops stock still within an arm's length of the skeletons. Is he frightened? No, he does not appear to be; his eyes open up as large as saucers, and his mouth flies apart as he stares at the strange-looking objects before him. He is as motionless as a dark marble statue, but he really does not seem to feel at all timid. It is now certain that he is not, for he approaches the skeleton of the





SAMMY'S SURPRISE.



man and raises his hands and examines his bony fingers. He takes hold of one of the feet of the ape and looks at it and then turns his eyes to the feet of the man. He evidently sees at a glance which is the man and which is the monkey—a thing that cannot always easily be determined in what is in our time called fashionable society.

At this stage of affairs the Doctor emerges from the closet with a face wreathed with smiles. Sammy's eyes meet those of the good-natured Doctor, while a broad grin encircles his lips, showing more than ever the glistening edges of his beautiful teeth.

"Good joke!" grunts out Sammy, with a half-suppressed giggle, for he did not know whether it was proper to laugh in the presence of the bony remains of those who had once lived in the flesh.

"I thought perhaps you would be scared, Sammy," said the Doctor.





"Oh, no," replied Sammy; "I know them is only dead bones and can't hurt nobody."

"You must study your grammar," returned the Doctor, "as well as anatomy. Some of your remarks are shockingly incorrect. You should have said: 'I know those are only dead bones and can hurt nobody;' or, if you please, 'cannot hurt anybody.'"

Sammy's mind was too much occupied to pay much attention to this advice, and hastily assenting, began to ask questions about the skeletons. Room cannot be spared to give in detail all the questions and answers which passed between the Doctor and his little colored pupil, but the substance of the Doctor's remarks upon the skeletons was as follows :

"You see, Sammy, how differently the bones of the feet of the man look when compared with those of the ape. It is plain enough that the feet of the man were made for him to stand upon, while those of the ape are shaped as if for

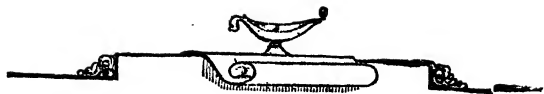




climbing. Then look at the arms and fingers of the two skeletons. Those of the ape are very much longer than those of the man, which formation better fits him for his wild abode in the pathless wilderness where he must find refuge in the tree-tops when pursued, while the erect legs of the man enable him to run when an enemy approaches, if he chooses—as many do; or he may make use of his more graceful arms and well-formed hands in wielding weapons of defence. But it is to be hoped that all usages of barbarism may pass away by and by, so that we may not think to allude to the value of the hands and feet for fighting in self-defence or fleeing from pursuers. It is promised us that, in the not far-off future, ‘the lion and the lamb shall lie down together,’ and that ‘nations shall learn war no more.’

“ Let us, then, rather consider the greater value of the human form as adapted to civilized and peaceful pursuits. The finely-formed fingers, with





a good thumb placed opposite to them, fits him for wielding the pen, which is said to be 'mightier than the sword.' The human hand is fitted, by its anatomy, to form from the wood that grows, from the shells that are tossed upon the sea-shore by the restless waves, and from the minerals that are dug from the coarse brown earth, a thousand and one inventions of the human mind for making our homes and what is in them comfortable and convenient for our little boys and girls.

"Speaking of the human mind reminds me of the very great difference between the skull of the man and that of the ape. I left the heads of the skeletons off for fear you would be frightened, but at some future time, when we are alone, I will show them to you.

"There is no comparison between the foreheads of the two. The man's is broad and high, showing great power for thinking, while the ape's is low and narrow, having only room for brain





which exhibits instinct rather than reason. But without looking at the heads of the skeletons you may see this fact illustrated by taking Sponsie on your arm and going to the mirror. Look at your head and then at his.

"When animals are taken to our homes and are trained and petted, quite a change, in time, takes place in the formation of their heads, but there is no known instance where training has made them at all equal to the most uncultivated man. If you and Sponsie should live many years, you will see that you will continually grow more and more apart in intelligence. Sponsie now knows no more than you did when you were a baby in the arms."

Sponsie hearing his name mentioned the second time darted into the room; but, oh! oh! how quickly he shot out again, chattering as wildly and loudly as if the skeletons had rushed after him! Bang! bang! went a window pane!





"He has jumped out the window, I bet you," shouted Sammy, as he and the Doctor started in pursuit. It was found, however, that he had only jumped through a glass shade containing



SPONSIE'S FRIGHT.

a large stuffed owl, in the library, and placed the bird in front of him, as if to frighten off the two monsters if they followed. And, it may be that it would have done so if they had pursued, for poor Sponsie's heart beat so that the owl moved as if alive, and if a stuffed owl looks grave enough to keep away the spirits of the dead, what would one seemingly alive do when only the bones of the departed were chasing a live monkey!

On the appearance of the Doctor in the library,





clothed with flesh and animated with blood and life, Sponsie breathed easier. Whether, downstairs, he saw only the skeletons and imagined that the Doctor and Sammy had changed to these, it is difficult to imagine. The Doctor and his pupil were, during the latter part of their conversation, seated in an obscure part of the room, although in full view of the skeletons about which they were talking. So, it may be, that Sponsie thought the familiar voices and the sound of his spoken name came from those horrid bones, in which case he certainly had a perfect right to be scared, and a right as sacred as that of self-preservation to break the glass case and put the grave-looking owl in the foreground as a breastwork in case of attack, or as a scarecrow if hunted by the strange men of bones.

The Doctor soothed with kind words the palpitating monkey, and Sammy gathered up the pieces. As he left the room with





the broken glass in an old newspaper, the Doctor promised to show him more of human anatomy when they both should again have leisure





CHAPTER VII.

SAMMY STUDIES FROG-ANATOMY—SHOWS THE DOCTOR HIS BEAUTIFUL KITE—SPONSIE'S MISTAKE.



AYS to busy people pass away as rapidly as hours do to those who are unoccupied, and up to this time Sammy had not shown the Doctor his beautiful kite. Nor had he yet had time to try it. There it stood in the attic where it had been placed when finished.

May be, if he had been as much interested in kite-flying as he was in studying anatomy, this would have been otherwise. But the young anatomist begged the Doctor to let him keep





the key of the private closet so that he could go in and examine the skeletons as often as he wished and had time to.

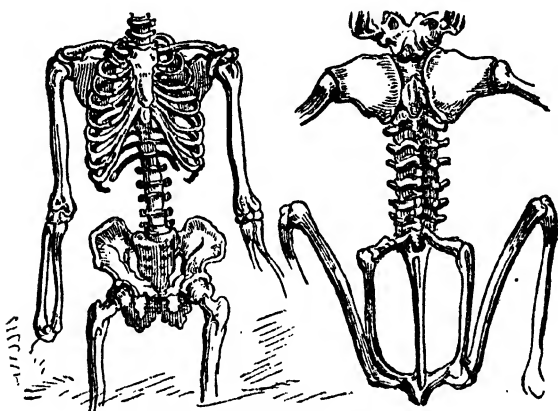
About this time it was observed that Sammy arose earlier in the morning than he used to do, and that, by the time the Doctor came down to his breakfast, the office rooms were all put to rights, the front steps washed, the sidewalks swept, and everything in what an old-fashioned farm-wife would call "apple-pie-order." You will not, then, be surprised, when I tell you that Sammy was pursuing his studies among the bones.

Taking in his hand the skeleton of the frog, to the private closet, and comparing it with both that of the man and the ape, he saw at once what was meant by the Doctor in a former conversation when he said that the frog had only the rudiments of ribs. With a pencil he drew as well as he could, on paper, the rib portions of the man and then the rib portions of





the frog, so that he could the better compare them. Sammy had a natural taste for drawing, and succeeded pretty well. Here is a perfect copy of his work, the chief fault of which is that



SAMMY'S DRAWINGS OF THE RIBS.

the bony frame of the frog is as large as that of the man.

Just as he had put these drawings on paper the Doctor entered, and seeing what Sammy had in his hands, pointed out the defects in the





drawings, after which he said—"These rudimentary ribs of the frog, as they are called, are so named because they are not so fully developed as they are in many other animals, including man. It would also seem that perfect ribs are not so necessary for the protection of the vital parts of the frog as they are for the protection of the lungs and heart in more sensitive and highly developed animals. A frog, it is said, is so tough that he will live for a long time after his heart and entrails, are cut out!"

"Lungs and heart! what be they, pray?" blurted out Sammy, for he had never heard of these organs before.

"Not *be* they, Sammy, but *are* they," responded the Doctor. "Well, Sammy, the lungs are the organs with which we breathe, and the heart is the very important organ upon which the body mainly depends for the circulation of the blood. Wounds in either of these organs of the human body, usually result in death, but not much





skort of their entire removal will cause the death of the frog. Hence you see how valuable our strong bony ribs are to us, and of how little use such ribs could be to the kind of creature whose skeleton you hold in your hand.

"The frog is a very queer animal," the Doctor went on to say. "At his birth he is almost like a fish. He has no legs, and lives entirely in the water. He then goes by the name of tad-pole, and the boys nick-name him polly-wog! When hatched he is only about half an inch in length, having a mouth, gills and tail like a fish. With the tail he sculls himself through the water, for unlike his neighbors he has no fins. After a while the little fellow, at first active like the minnow fish you find in the small ponds, becomes inactive and almost motionless, and then the legs begin to grow, and as these grow the tail shrinks away shorter and shorter till it disappears entirely!"

"Pretty good swap, that," retorted Sammy "one tail for four legs!"





"That's so," replied the Doctor, and, as if to get even with his little pupil in wit, he said, "at this point Mr. Tadpole changes his family name, like a woman who gets married and becomes Mr



THE TAD-POLE AND FROG.

Frog, and instead of staying all the time with the bull-pouts and other fishes, he hops out of the water on to a log, or on shore, to watch for worms and insects, which he springs for and swallows eagerly. A bull-frog is said to have a throat





large enough to swallow mice and small ducks." The Doctor here turned to a book of Natural History, and showed the boy how a frog looks at birth, when he is the companion of the fishes and water snakes, and then what sort of a chap he becomes when he aspires to make the acquaintance, for mercenary purposes, of rats and mice on shore. As you would, undoubtedly, like to see it, I have reproduced the picture here.

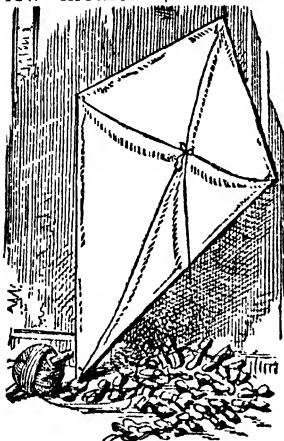
After speaking of the capacious swallow of the bull-frog, the Doctor dismissed the frog question, telling Sammy that there was so much to learn regarding the human body, they would do better to confine their conversation mainly to that subject. To this Sammy readily assented, saying, in effect, that the skeleton of the frog did much at the outset to increase his interest in the study of anatomy, and that the present conversation regarding the habits of the animal would be likely to make him more observing of the habits of men.

As the Doctor was about to go, Sammy





thought of his kite once more, and asked him if he would not like to go up and see it. Taking out his watch, the Doctor said he could spare a few moments, and both rapidly ascended the



THE KITE THAT SAMMY MADE.

stairs to the attic, where they found Sponsie winding the tail of the kite around his neck, and looking at himself in the hand-glass. Whether he thought he was making himself look like a lady with an excess of cheap neck trimming, or whether he flattered himself he was inventing a new fashion, is not quite certain. On the appearance of the Doctor and Sammy he dropped the tail of the kite and jumped on the shoulders of the noseless and earless bust of Shakespeare, which was put up there at the time when Sponsie





knocked it down stairs on his first becoming a truly loyal but not orderly citizen of New York.

The Doctor was struck with the evident mechanical ability of his office boy, when he came to take a critical view of the kite. There it stood, taller than Sammy himself. As the Doctor was looking at it, Sammy happened to think of the new trick he had taught Sponsie, and proceeded to tell him about it, going through all the motions with his hands, and casting his eyes first upon the Doctor and then upon Sponsie. The monkey seemed to know just what they were talking about, and appeared highly pleased that he was the hero of Sammy's story, illustrated as it was with all sorts of motions as to how Sponsie went through the hoop. To illustrate the matter a little more effectively the boy raised the kite as far from the floor as he had done the hoop, when—

Well, words cannot do justice to the scene!
"That monkey dashed right through the kite, don't





you think!"—I may as well use the very words Sammy did when he told me about it—"right bang through the paper of that beautiful kite!" The Doctor could not resist an outburst of laughter, but suppressing it as quickly as possible, his merriment was followed by real sympathy for Sammy, who flung down the tattered remains of what a moment before looked almost like a thing of life, and burst into tears. Sponsie looked up mournfully into his master's face, moving his sad-looking eyelids, as only a monkey can, in blank disappointment, that the trick which had but a few days before given Sammy so much pleasure, should now put him in so much pain.

"Well, never mind," said the Doctor; "I will buy you some fine brown paper, with which to cover it next time. I see you can make a first-class kite, and you shall have the best of material for papering it, now that I see you can do it so well. The newspaper covering was





good enough for a beginning, and certainly quite good enough for a monkey to jump through, but hardly in keeping with the art displayed in the making of the kite."

As Sammy wiped the tears from his eyes, he thanked the kind Doctor, but went on to say that he could not afford to spend any more time on the kite; to which the Doctor responded that he must take time for play, as well as for work and study. Most boys do not need this kind of advice, but the Doctor knew his boy, and felt he was only doing right when he advised him to take time for a little play and recreation now and then.

Again, looking at his watch, the Doctor turned upon his feet in a hurry. Sammy hung upon a high nail the sad remains of his kite, and Sponsie went slowly down on all fours to the basement, to solace his wounded spirit by catching flies, a never-failing pastime for monkeys.





CHAPTER VIII.

THE RESTORATION OF THE UNFORTUNATE KITE—
SAMMY LEARNS MORE OF ANATOMY — THE
HINGES OF THE BODY — SPONSIE AS A HEAD-
BUMPER.



NE day, when the Doc-
tor returned from a visit
to a patient living in
one of the business
portions of the city, he
unrolled before the eyes
of the astonished Sam-
my a sheet of the best
Manilla paper, sufficiently
large to cover the kite
without splicing.

“Bully!” shouted Sammy.

“What?” quickly retorted the Doctor. “I
beg of you not to use the slang words of the
vulgar boys of the street.”





The boy was too young to see for himself the bad taste of slang phrases, and the Doctor determined to correct his little ward whenever he used them in his presence. Sammy thanked him, and replied in substance that he should strike from his vocabulary the bad yord he had used.

After looking enraptured for a few minutes at the magnificent sheet of paper, containing square feet enough to serve as a bed-spread, with three in a bed, the beaming countenance of Sammy suddenly changed, just as the sun's light does when a cloud passes before it.

The eyes of the Doctor were upon the boy; and what, queried he to himself, can have caused this sudden change in the mind of the lad? Not pretending to notice it, he said to his pupil: "Now, Sammy, in order that you may lose no time, I propose, while you are covering your kite for the second time, to tell you a good deal more about the bones. We will wait until I get through with my professional





calls and you have finished your regular work for the day."

Instantly the shadow passed from Sammy's countenance, and the Doctor then knew, without asking, what shot through the little fellow's mind while he was stretching out and admiring the great piece of brown paper bought for his kite. Sammy valued his time. He had many hours of work to do each day, and it seemed difficult to find time for play and anatomical study too. But now that the good Doctor had proposed a way of "killing two birds with one stone," as the common phrase expresses it, he felt relieved, and returned to his task of polishing the silver knobs and door-plates with quick hands and sparkling eyes. So bright were the silver trimmings about the door-way when he had finished, the flies darted at their own shadows reflected from the mirror-like surfaces of the silver plate.

The next thing to do was to "shinc up" the





Doctor's instruments — the silver mountings of stethoscopes for examining the lungs, the speculums for examining the cavities of the body, and lots of other things having jaw-breaking names, which the boy had heard but could not for the life of him repeat.

As Sammy rubbed away at these instruments with chamois skin and whiting, his imagination was actively engaged in thinking what a tremendous fellow he would become when he should learn how to use all of them himself, for he had now determined within his own mind that he should some day go by the name of Doctor Tubbs, and how many, thought he, with a grin of satisfaction stealing over his countenance and a roguish twinkle in his eye, will mistake me for Doctor Hubbs! Or, what would be more flattering still, if Doctor Hubbs would take him into partnership with him, and add his name to the one already on the sign, so that it would read Doctors Hubbs and Tubbs, Surgeons and Physicians!





As Sammy was thus musing to himself and building air-castles without limit of number or size, the Doctor's key was heard to enter the lock of the vestibule door, and in a moment more the sunny face of Sammy's employer stood beside him.

"Now, my boy, put those things down for the present," said the Doctor with an air of animation, "and we will talk bones and cover the kite."

Nothing, of course, could have suited Sammy better than this generous proposition, and taking two steps at each leap, the delighted fellow soon landed on the top floor, the Doctor following with a less impatient step, greatly pleased with the activity of Sammy's body and mind. By the time the Doctor had reached the attic, the boy had got down the broken kite, and was at that moment stretching out the roll of Manilla paper so as to lay the kite upon it.

"You go on with your work, Sammy," said Doctor Hubbs, "and I will do the talking."





"See, Sammy, if you can double up those kite sticks," added the Doctor.

"Double up the kite sticks!" exclaimed the boy with surprise, looking up inquiringly into the Doctor's large blue eyes. "You don't mean it."

"Well," inquired the Doctor, "why not?"

"Why I did not make it with hinges," replied Sammy. "Kites ain't made with hinges no-how."

"Well, then, let me see you double up your arm," said the Doctor.

The boy promptly did this, whereupon the Doctor asked Sammy "if his arms had hinges?"

Sammy's large black eyes dropped, and soon his arms, which had been folded, fell by his side, and then a pair of large shears from his fingers to the floor. The boy was in a brown study. In a moment more his pride was touched. He had flattered himself that he knew so much of anatomy, he felt not a little ashamed to find



himself cornered in this way, and, in his confusion of mind, he looked up hesitatingly into the Doctor's countenance and, with another movement of the arm to reassure himself, replied—"Yes."



SAMMY'S PERPLEXITY.

The Doctor felt a little like laughing at the boy's manner and reply, but suppressed the feeling, because he did not want to discourage his pupil. The little fellow had much to learn yet, and it seemed necessary to lead him care-





fully on, step by step, till he obtained a good general idea of the way in which the human body is made. Therefore, the Doctor, instead of denying the correctness of the reply, said — “Well, it is a kind of hinge, to be sure, but we doctors call it a *joint*, and that is the only right name for it.”

“Joint,” repeated Sammy to himself; “I guess I can remember that; then thinking a moment, he asked, “Do we have joints in our legs too?”

“Certainly,” responded the Doctor. “We may be said to be full of joints, and that is why we can move not only our legs and arms, but also our hands and feet, and our heads and necks, and turn our bodies in various ways. If our skeletons were made without joints, we should be as unbending as that kite. You would be unable to move your arms or legs—to bend your body or bow your head. In fact, you could not eat. Do you not remember how Biddy





looked when her jaw was out of joint? When any of the bones get out of place, the power of bending or moving the affected parts is impaired or destroyed.

"When you go down stairs again, look at the knees and elbows of the skeleton, and see how ingeniously they are formed, not only for a forward and backward, but also for a turning motion. No hinge made by human hands can equal in perfectness any of these joints. And what do you suppose," inquired the Doctor, "is the reason these joints do not squeak or wear out?" Sammy looked as dumbfounded again as if he had been asked what prevented the world from squeaking as it turned on its axis! He knew how they managed to keep engines from squeaking, where one part rubbed or grated upon another, or in things moving upon hinges, for he had himself shot in drops of oil from the tiny mouth of a tin oil-can. But he felt sure he had never oiled his own joints.





or those of his elbows, or, indeed, any of his other bending places from his head to his heels, nor did he believe that anybody else had done it for him when he was fast asleep.

Seeing his perplexity, the Doctor proceeded to help him out, for he knew very well that the boy would have to be told before he could know.

"Nature," remarked the Doctor, "has provided means to keep the joints well lubricated or oiled as you would call it. All the movable joints are surrounded by what are called synovial membranes, and these take up from the blood by a process of soaking or absorbing, just as cloth takes up water, a fluid which they pour into the joints as fast as they need it, and this lubricator is called the synovial fluid. It is made up of what is called albumen, soda, salt and lime, and one physiologist says uric acid in addition. When you come to know the nature of these ingredients, you will see that there is nothing in





this compound which is like the oil used as a common lubricator for machinery; nevertheless, it seems to be just the thing for making the joints work well without friction or injury.

"Next, I would remind you, Sammy, what a queer fellow you would be if your spinal column was made up of one stiff bone," said the Doctor.

'Spinal column! what's that?' asked Sammy; for, by this time, he was not so ashamed to ask questions. He fully realized, as he proceeded with his anatomical lessons, that he did not know as much as he thought he did. We have only to get some one who knows more than we do to ask us questions to take the conceit out of us. The uneducated man is dumb before the man of science; the man of science is equally dumb before his Creator. Nature is daily putting questions to our most cultivated men, which they vainly strive to answer. Let none of us, then, be ashamed to ask questions.





"The spinal column," said the Doctor, "is made up of twenty-six bones, placed one upon the other, and held together by supporting membranes. The ring of bones which sustains the soft parts of the seat is called the pelvis. In the back of the pelvis is a bone called the sacrum, which forms the base of the spinal column, and from it the latter arises bone upon bone, each one notched so as to fit exactly into the other, and each fastened to the other by membranes as before mentioned. And these, altogether, form what is correctly called the backbone, or spinal column."

Here the Doctor, taking a pencil from his pocket, sketched upon a piece of paper a repre-

THE SPINAL COLUMN.





sensation of the spinal column, which we have reproduced in this place so that you can see it.

"These bones," continued the Doctor, "are called the vertebræ, and it is because of their being thus jointed that you can bend and turn your body in all directions. When you examine the skeleton again, Sammy, just move it about and see how the backbone bends and yields whatever way you turn the same, short of attempting to turn it completely around.

"This putting together a whole lot of small bones to make the parts which they sustain yielding, instead of having fewer and larger ones, is also illustrated at the wrists and ankles. For instance, there are eight bones in the wrist and five more between the wrist and fingers. Then cast your eye down to the region of the ankles of the skeleton and you will find seven bones forming the heel and instep of the foot.

"It is this combination of small bones with elastic membranes at the back, wrists and ankles.





which gives to each of these parts the capacity for such variety of motion as you observe in them."

Here Sammy turned his hands upon the bones of his wrists and twisted his feet about upwards and sideways; and finally, by various motions of his body, took great care to notice the entire ease of these various performances.

I trust my young readers are as much interested as Sammy was in all this. While the Doctor was explaining these things, the boy dropped scissors, paste-brush and everything with which he was working, to catch every word that fell from the Doctor's lips; and although there were occasionally some big ones which he did not quite understand, he felt sure that he should some time master both them and their meaning.

"I shall not yet," resumed the Doctor, "try to tell you about all the bones, for there are 260 of them in all in the body of a little boy. A few of them grow together as one grows older.





and those which do not unite become a little less movable in their surrounding membranes and cushions, and it is for this reason that old people are so much stiffer or inelastic in their movements than younger ones.

During this interesting interview Sammy had cut out the paper to fit the kite-frame, and had pasted it all on excepting on one side. But for the interest he felt in hearing all the strange things the Doctor had been telling him, he would have had it done and time to spare at that. But he did not care, especially when the Doctor, on leaving him, told him that he could finish the kite before returning to his work of polishing the instruments.

So Sammy kept on with his kite, and when the Doctor went down stairs he sent Sponsie up to keep Sammy company. As Sponsie entered the room with one gay leap from the top landing of the attic stairs, his manner at once became subdued, for he saw what Sammy was at. Sponsie





was not such a fool, nor such a stupid monkey, that he could not see that Sammy was doing over again work which his one jump too many had spoiled. So he got down on the floor, too, and edged along so near to his master, in helping pat down the newly-pasted parts, that he kept bumping his head against Sammy's. His master would good-naturedly push him off a little, but he would as often keep working up, until every forward movement of Sammy's would be met by one from Sponsie, attended with a bump of the human and monkey heads. At last, a pretty severe collision taking place, Sammy felt that "forbearance ceased to be a virtue," and drawing himself up indignantly and looking into the monkey's sad eyes, broke out with: "Now look a here, Mister Sponsie, this fun for you is death to me. Your skull bones is just like them apes' down stairs—is just about twice as thick as mine is; and I don't stand this unequal contest no longer!"





Sponsie saw that his valuable services were not appreciated, and gravely drew away a little. Sammy, meantime, pleasantly thinking to himself, that in his speech to Sponsie he had



SAMMY'S INDIGNATION AT SPONSIE.

expressed himself quite as an experienced anatomist would have done, in regard to the comparative toughness of his and Sponsie's skulls. His remarks were certainly more correct anatomically than they were grammatically. But his ungram-





matical language might be set down as his "mother-tongue." Nor could the style of speech in which he was educated for years in the wash-room of his colored mother be very much improved by living only a few months in an educated family. And when my young readers, who have had so much better home instruction, see how ready Sammy was to learn everything useful, including the anatomy and physiology of the human body, it is to be hoped that they will not be less interested in studies of so much importance to their health and happiness. I will close this chapter by telling you that Sammy had the pleasure of completing his kite that evening, and that with its beautiful new Manilla paper covering, you could hardly have helped coveting it yourselves had you seen it.



CHAPTER IX.

THE APPROACH OF WINTER—SAMMY AND THE
CARTILAGES — SPONSIE AMONG THE COAL-
CARTS — SAMMY AND SPONSIE IN WINTER-
QUARTERS.



IF the power to feel the
varying temperatures of
the atmosphere should
be destroyed in any one
having perfect ability to
see, he could still deter-
mine with comparative
exactness the changes of
the seasons by the evi-
dences all about him.

These changes are not
only shown by the opening leaf of spring, the ripen-
ing fruits of summer, the golden harvests of
autumn, and the falling leaves as they grow crisp,
brown and brittle in the frosty breath of winter,





but they are also indicated by the doings of the busy people all about us.

When, therefore, I tell you that at this moment five large carts of anthracite coal and two of another kind of coal called bituminous, are standing in front of the Doctor's, you will guess, like an ever-guessing Yankee, that winter is near at hand. Sammy looks out of the door with surprise, and Sponsie, pushing his head through between Sammy's legs, seems equally interested in what is going on. There is very little taking place in or about the house that Sponsie does not see.

At his wash-room home, Sammy had been used to seeing coal bought by the pailful, and such a thing as laying in a winter's supply was to him altogether a new idea.

"There," said the Doctor, coming up the steps, "are a few loads of Mother Earth's skeleton, that we propose to burn up for our comfort, while the old lady is coquetting with old Sol for the next five months."





Sammy did not understand much of this, nor did he see why the Doctor should call the loads of coal portions of the earth's skeleton. "I don't care much about croquetting or old Saul," muttered Sammy to himself, "but I should like to know what he means by Mother Earth's skeleton." So, watching a chance when the Doctor was not directing the men who had brought the coal, he asked, "Is it true that the earth has a skeleton?"

The Doctor laughed, and replied that it might perhaps require a little stretch of the imagination to look upon the rocks, stones and coal as composing the skeleton of old Mother Earth; "but," said he, "they really do fulfil about the same purpose to the earth that the bones do to the man, because they support the soft parts of the globe on which we live. And the gradations of the various parts of the earth's framework are about the same as those of the human body. First you have the hard rock, which can scarcely be broken, corre-





sponding to the large hard bones of the body, such as those of the pelvis, the large parts of the legs, arms, shoulders and skull. Then you have the smaller and more crumbling stones which resemble somewhat the bones of the wrists, ankles and spine. Finally, coal is something like the cartilage of the body, which, in its first condition, is soft and yielding, but changes in part to bone.

“Geologists tell us that thousands upon thousands of years ago coal was such a soft mass you could have pushed your finger through it. In fact, it was produced by dead trees and plants undergoing chemical change. Finally, it hardened a little, and became what is called bituminous or soft coal, and that portion that has become as compact as rock is called anthracite coal. The bituminous seems to be an oily coal burning freely with a blaze, and giving off much smoke; while anthracite is harder to kindle, but when once well ignited pours out intense heat and burns with





a short blue flame without smoke. The bituminous coal is used more for grates and open fireplaces than for other purposes, because it gives out such a cheerful blaze, while anthracite is used more in stoves and in the furnaces of foundries and manufactories. I am," said the Doctor, "going to use these loads of bituminous coal in my office-grate this winter, and let Bridget have the hard coal for the furnace and range."

"But," inquired Sammy, "what is the human cartilage? You never told me about that before."

"Well, I have rather drifted away from that, my boy, that is a fact," smilingly replied the Doctor. "I was going to tell you why the coal is like our cartilage, and why our cartilage was like Mother Earth's coal."

Just here there was a terrible rattling, frightening of horses and rolling away of dense clouds of coal-dust. The Doctor sprang from the steps, and caught one horse, Sammy another, and the





by-standing cartmen seized the rest of the terrified animals.

"What is the matter?" demanded the Doctor rather excitedly of one of the men. The seven men who came with the coal ran from all directions to the spot. Each looked at the other with upturned and coal-blackened countenances as if to ask, "What's up?"

At this moment Sponsie was observed leaping from under the rear cart, which had nearly tipped the contents of its box upon him, and would have done so had he not been 'spritly enough to dodge quickly under the front part of the axle.

The secret of the whole thing was out now. Sponsie had seen one of the men remove the pin to the backboard of the first coal-cart in line, and evidently thought to himself that he would earn a better claim to his dinner by helping the men. So he jumped from one cart to the other, removing the pins from each of them.





As the first man dumped his coal on the sidewalk fronting the house and led his horse away, all the rest of the horses moved up a little with their loads, and as they did so, the jar of the vehicles loosened the back-boards of four of the carts, causing the boxes to tip down, at which moment the coal flew out with such a loud and unusual racket, that all the horses started off affrighted, while the dust of the coal ascended as thick and blinding as a dense cloud of smoke. The street was completely blocked with the coal, which was strewn in nearly all directions, and as the cloud cleared completely away, so that people could see each other distinctly, there stood the Doctor grasping firmly the head of one horse, Sammy holding, with a desperate grip, the rein of another, while the other horses had one or two stout hands at the upraised heads of each. The baker's wagon which stood across the way had disappeared entirely, and the driver, with two loaves of bread under one



SPONSIE AMONG THE COAL CARTS.





arm and a scorched pie in the hand of the other, stood transfixed on the steps of the grocery opposite, looking with anxious face in all directions, his pale countenance contrasting strangely with the sooty faces of the cartmen, and, indeed, with those of the Doctor and Sammy, for the wind blowing towards them had covered them with the coal dust, so that they looked as if they too belonged to Messrs. Carbon & Co.'s coal-yard. Mrs. Hubbs flew to the door, on hearing the disturbance, and she declared that she could not tell which was the Doctor and which the coal man. All were as black as the colored boy Sammy, and through fright the colored boy Sammy was as white as any of the bystanders about him; or, in other words, white and black met in an intermediate hue.

Sponsie, seeing what his mischief had done, left that side of the street and gathered himself all up in a little heap in one corner of the





front window-sill, in the second story of the grocery on the other side. He shook like a dog with the distemper, and his melancholy face looked sadder than ever. Sammy had to cross the street, ascend the stairs, and raise the window to capture the roguish little fugitive but instead of having the dinner he undertook to earn, Sponsie lost it entirely, for Sammy locked him up for the day in the dark closet which had become a kind of prison for the monkey when he did not behave himself.

The things, with which on a former occasion he had beautified himself, had been carried away, so that when Sponsie should be shut up at any time he could have nothing with which to divert himself excepting his reflections upon his mischievous conduct.

Poor Sponsie! All this he suffered for just being a monkey! for what is a monkey, but a mass of un-thought-of mischiefs, of every variety possible to the whole animal creation, cast in one





mould, which was condemned as hardly perfect enough for the formation of his superior—man? And being made up thus, is it not as natural for all sorts of mischief to emanate from his brain and hand, as it is for a fire-cracker to emit sparks of fire, and finally startle everybody with an explosion!

The Doctor and Sammy had to change all their underclothes, and rub their hands and faces with soap and water till the skin smarted. Then, opening the door and telling the men he would pay them extra for their trouble in gathering up the scattered coal, the Doctor returned to his office, where he and Sammy concluded their conversation.

"Let us see," said he to the boy, "where did we leave off?" and his brow wrinkled a little, for he had not yet recovered from the general confusion which Sponsie's conduct had occasioned.

Sammy was very quick to respond. "Why!





Doctor, the *cartage*—it was the cartage you were talking about.”

“No, no, Sammy, you have got the coal business and our subject confounded. It was the cartilage, of which we were speaking.”

“Well, but,” said Sammy, hesitatingly and thoughtfully, as if he had a crude idea of something and didn’t know what, “you said the word, whatever it is, was like coal.”

“Not quite that, Sammy,” responded the Doctor. “Cartilage is not at all like coal. I was undertaking to show you that the hard, or supporting portions of the earth, do for our globe what our bones do for our bodies. In other words, they supply a solid foundation for the soil and the vegetation which grows upon it, just as our bones provide a foundation for our flesh, muscles, and so forth.

“Then, I said, that in one respect the coal of the earth could be likened to our cartilages and was about to tell you why, when we were





startled by the coal carts. I spoke of the changes which the coal passes through, from the soft and pliable, to a hard and stony material. Now I will tell you of the cartilage."

"In the early period of babyhood all the bones are small cartilages, or are composed of a material softer than bone, and harder than flesh, which we call cartilage. After birth many of these cartilages harden and become bone. And herein is the similarity between the coal of Mother Earth and the cartilage of the human body. When Mother Earth was a baby, her coal-beds were as soft as your cartilages were when you were a baby, and now that she has become more matured, her coal is as hard or harder than your bones."

"Well, then," asked Sammy, "have all my cartilages turned into bone?"

"No," responded the Doctor, "nor is it probable that they ever would, if you should live to be a thousand years old. When you were





born your body had what are called temporary cartilages, and also what are called permanent cartilages. Or, in other words, you had some cartilages which were sure to harden into bone, and others, which would never become quite like bone."

"Please, tell me, Doctor, where I have any cartilages *now*," said Sammy, with his roguish eyes fixed upon the face of his preceptor.

"There are," replied the Doctor, "some of what are called the temporary cartilages forming in your framework, and will so form, gradually changing, till you reach the age of twenty. For instance, the large, long bones of the arms and legs, if removed now, would be found to have the character of cartilage where they enter to form a part of the joint."

Here the Doctor sketched with his pencil the thigh-bone of a boy of twelve or fourteen, giving the ends which, at this age are still cartilage, a darker shadow than the rest. The picture, as





the Doctor made it, shall be presented here, and the reader must bear in mind that the dark portions at the ends of the bones represent what is called temporary cartilage.

"These cartilages," continued the Doctor, "will become bone when you grow to manhood, but, even then, there will remain a coating of permanent cartilage at the ends of the bones of all the joints, for the purpose of forming cushions upon which these hard ends can move, and the cushions will continue so long as you live, unless they are destroyed by disease or accident. Then there are the layers between the immovable bones where they are joined together. All the cartilages belonging entirely to the bony parts of the

THIGH-BONE, WITH ITS CARTILAGINOUS ENDS, IN BOYHOOD.





body are composed of a hard white or bluish-white substance, which, as remarked before, is harder than flesh and softer and more pliable than bone.

"I should tell you, though," continued the Doctor, "that there is another kind of cartilage, not so hard and firm as the first, of which are formed the stiff parts of the ears, hard, but bending portions of the nose, edges of the eyelids, the wind-pipe through which you breathe, and which you can feel in your throat if you will press your fingers there. This pipe extends downwards, and divides into ever so many smaller pipes which enter into and supply your lungs with air when you breathe. All the pipes of the body—of which you will learn more after a while, with a little patient study—are made of this same kind of cartilage, which is of a yellowish color, and when taken apart looks as if made of small, strong strings glued together.

Now, I think," remarked the Doctor, "you





have got about as much of a load as your brain can carry for a few months, Sammy ; and as I am going to be very busy from this time on to spring, I propose that you continue to study the skeletons, and look into my doctor-books in the library, when you have spare time, and I think you will then pretty well understand how the bones and cartilages are put together by the time you shall have been with me one year. I would also advise you, Sammy," concluded the Doctor, "to go to one of the evening schools and give strict attention to spelling and grammar."

Sammy responded "Very well," with a kind of chopfallen look, as he turned to go out of the office, stubbing his toes against his heels, then against the chairs, and nearly falling to the floor ; for his little head was so full, and he knew so little what he was doing, that his feet went wherever they had a mind to ; and the little chap, for a few moments had very slight





control over himself. He did not at all like the idea of giving up these anatomical conversations, and, if boys ever have "the blues," Sammy had them for the balance of the day. But before night he came to the sensible conclusion that those who would be helped must first learn to help themselves, realizing that he had already occupied a great deal of the good Doctor's valuable time, in which he had obtained a start in anatomical study, of which few boys of his age, to say nothing of his humble beginning, could boast. With a lighter heart, at the end of this bit of wise thinking, he hastened up stairs to liberate Sponsie.

Poor Sponsie! He did not emerge so much like a monkey prince as he did on a former occasion; he seemed as limpsy as a rag. He turned his head and eyes away from Sammy and looked as much ashamed as a little boy does when caught in some naughty trick. Instead of





leaping down-stairs, as he was in the habit of doing, clear ahead of Sammy, he followed slowly behind, and every now and then would stop and give a kind of whining noise until Sammy coaxed him a little.



SPONSIE'S LIBERATION.

It was wrong in Sammy to keep Sponsie so long without eating. Of course he had not yet learned enough of the body and its needs to know how injurious it is for one to go without





food when hungry. Poor Sponsie's stomach suffered for several days because of this prolonged fast, and his first meal after his liberation was thrown up, his stomach having become sensitive by being so long empty; indeed it was fully a week before Sponsie was himself again.

Sammy, however, was quite as wise in this matter as some parents who punish their children by depriving them of their dinner, or by sending them to bed without their supper. So we will forgive him as we hope "Our Father who art in Heaven" will forgive them; but forgiveness from neither of these sources can repair the injury done to the bodily health by such improper punishments.

With the close of this chapter we will leave Sammy and Sponsie in their winter quarters, trusting we shall, upon the opening of spring, find the office-boy far advanced in his anatomical and school studies, and the monkey a little less liable to get himself into troublesome scrapes





CHAPTER X.

WINTER OVER — DR. WINKLES' CALL — SAMMY SHOWS HIM WHAT HE KNOWS — DR. WINKLES' LOUIS NAPOLEON BONAPARTE AND HIS STUPIDITY — SPONSIE IN MISCHIEF AGAIN.



NCE more the winds of March are whistling a medley of requiems, waltzes and jigs around the windows and cornices, and the lingering snow-flakes of a northern winter tip the edges of the roofs and sills. One can almost imagine the clouds, moving wildly about in the blue ether of heaven, to be keeping time to this weird orchestra of nature, as if in mockery of the festivities of the ballroom, while the great chandelier of our planetary system





momentarily reveals to the eye their rich laces of silver and gold.

Three faces were at the office window looking out upon this grand panorama of nature—three well-known faces—the little, pinched, sad, restless one belonging to Sponsie, the black enameled one, with glistening white settings beneath the eyebrows, and between the lips, which you will at once recognize as Sammy's, and the large, generous, good-natured, intellectual one, which the Doctor ever carried about with him.

"It is just one year ago this very day, Sammy," remarked Doctor Hubbs, "since you came to live with me. You have been a good and attentive boy, and have discharged your duties better than any one who has before occupied the place. As you have done well for me, I shall undertake to do the best I can for you, and, now that the busy season is nearly at an end, I shall again give you more or less of my time, if you





still feel the same interest that you did in the study of anatomy."

"Thank you, Doctor," politely responded Sammy; "I hope I can continue to satisfy you in doing my work, and if you are able to give me some more lessons, I shall try to make greater headway than I have succeeded in doing during the winter. With the help of Mrs. Hubbs, I have been studying my grammar more than I have the skeletons, or the books in the library. So far I have hardly looked into the doctor-books, and then only to find out the names of the bones."

At this moment they were interrupted by a ring of the door-bell, and in a moment more Sammy ushered in Doctor Winkles, who dropped in a moment to see Doctor Hubbs. The two doctors shook hands cordially, and while doing so, Sammy and Sponsie slipped out.

"Smart-looking boy, that," said the visitor to his friend: "Mine is about as stupid as a 'What





is it.' I told him the other day to take up the ashes, and he did take them *up*—all the way up to the attic, and dumped them on the floor there. Vexed at his stupidity, I told him to take the scuttle and carry them out, and, would you believe, he unhinged the scuttle-door, and piling them upon it, carried them *out*—out on the roof! Except for his poor mother, I would not keep him for a day, for, beside knowing nothing, he seems to have an instinctive prejudice against learning anything."

The two doctors made the room ring with laughter over the blunders of Doctor Winkles' boy, and when they got a little over their merriment, Doctor Hubbs stepped to the door and called — "Sammy, Sammy!"

"Yes, sir;" quickly responded the boy, who was shaking the dust from the mat; and, dropping it instantly, stepped into the office.

"Now, Sammy," said Doctor Hubbs, 'I want to show Doctor Winkles what you know about





anatomy. Come around here and take a seat a minute."

Sammy felt very nervous on being called up, without any previous notice, for examination before a noted doctor, and, though he felt chilly on the steps, the chattering of his teeth had not been uncontrollable till now.

Doctor Winkles, noticing his timidity, passed his hand soothingly over his curly head, and asked him a few questions about his monkey, telling him at the same time what a monkey of a boy he had to attend his bell and take care of his office. Then Doctor Hubbs told a story about Sponsie which set them all into a roar of laughter, so that Sammy soon felt at home sitting between the two distinguished physicians.

"Now, Sammy," said Doctor Hubbs, "tell Doctor Winkles how many bones you have."

"Two hundred and sixty bones," quickly answered the boy; "but when I get older I





shall not have quite so many, because some which are now separate will unite together.

"What bone is this?" asked the Doctor, putting his finger upon his chest, midway between his shoulders.

Sammy paused a while; whereupon the Doctor recollected the fact that he had not told him the name of the breast-bone, and proceeded to excuse him, when Sammy interrupted the explanation with—

"The sternum!"

"Bravo!" exclaimed the two doctors at once.

"But how did you know that?" inquired Doctor Hubbs.

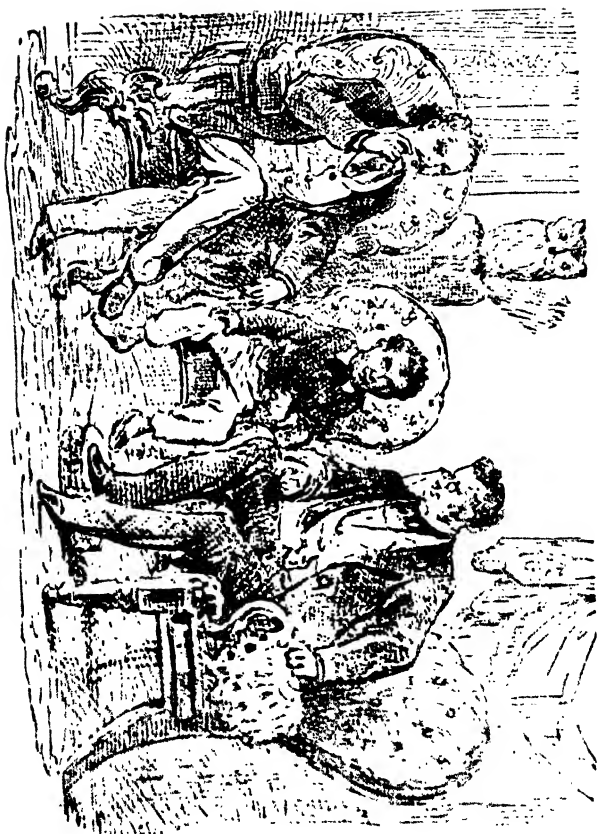
"Oh, I learned it myself," replied Sammy.

The doctors looked at each other with a twinkle of satisfaction, and the face of Doctor Hubbs revealed a half-suppressed emotion of pride as he looked down upon his black, curly-headed ward, who really looked as smart as he talked.

"There," pointing to the bony cap commonly



ARTY QUESTIONED BY THE DOCTORS.





called the knee-pan, breaking the momentary silence, "is my patella, and"—moving his hand down to his shin-bone—"here is my tibia," resumed Sammy thoughtfully.

"Splendid, my boy!" said Doctor Winkles. "If I should ask my Louis Napoleon Bonaparte (for that was the name of Doctor Winkles's boy) to tell me where his patella and tibia were, he would go to looking in the wood-box."

"Have you learned," inquired one of the doctors, "the names of the bones of your fingers and toes?"

"I believe—let me think—yes," said Sammy almost inaudibly, "they are," raising his voice, "called the phalanges."

"Right!" "Right!" said the doctors one after the other.

"Can you," continued Doctor Winkles, "point out the cervical, the dorsal and lumbar regions?"

Sammy hesitated a few moments, and thought to himself—"I never heard of the cervical





dorsal and lumbar *regions*, but the cervical vertebræ are the spinal bones in the back of the neck; the dorsal, the spinal bones from the neck down to about as far as the elbows reach when thrown downward and backward; and the lumbar vertebræ continue from this point to the hip-bones." Thus thinking to himself, he asked his questioner to turn a little sideways in his chair.

"There," putting his finger on the back of the Doctor's neck, "is, I guess, the cervical region; and there," placing his hand in a position to extend as far as possible up and down the back, between the shoulders, "is the dorsal region; and," shifting his hand to what is commonly called the small of the back, "there must be the lumbar region."

"What makes you think so?" inquired Doctor Hubbs.

"Because," responded Sammy quickly, "the vertebræ in those places are so named, and I





should think they might, perhaps, give their names to those regions."

This was the first example of Sammy's logic which had come to the Doctor's notice. "My boy," thought the Doctor proudly to himself, 'is not only an anatomist, but a logician;' and with this thinking came the words repeated audibly to the ears of Doctor Winkles and Sammy, "anatomist and logician," in a measured tone of voice.

"Logician?" repeated Sammy inquiringly, with upturned eyes. "And what is a logician?"

"Logic," replied the Doctor, "is the 'art of thinking or reasoning justly,' according to Webster's Dictionary, which you will see if you will turn to it; and a 'logician is a person skilled in the art of reasoning.' For instance," continued the Doctor, "it was one thing to know that the bones of the vertebræ of the neck are called the cervical—those between the shoulders the dorsal—and those in the small of the back the





lumbar—but it required an act of reason, or an effort of what are called the reasoning faculties, to conclude, from these facts, that the names also might belong to the regions they respectively occupy.”

Sammy straightened up in his chair a little as the Doctor said this, and the motion of the boy was only in keeping with the swelling emotion of his mind, for Sammy had pride as well as other boys, and he thought he must be considerable of a chap in the eyes of the two doctors, if they thought him a logician.

Such feelings, although irresistible under some circumstances, are not well calculated to help any one out of a tight place; on the other hand, they are apt to aggravate confusion of mind when confronted with a knotty question. When one begins to think he knows it all, and, still more, imagines that those around him think he does too, it makes him feel awkward enough to have a question asked that he can-





not answer. Judge, then, of Sammy's blank surprise, and of his uneasy motions in his chair, when asked by Doctor Winkles—

‘How are all these bones of the body set in motion in walking, playing ball and rolling hoop?’

Sammy wriggled about in his chair, as if he had been sitting upon bent pins put there by mischievous boys, looked inquiringly into the face of Doctor Hubbs, then, turning a countenance confused with embarrassment toward Doctor Winkles, finally, with his head leaning to one shoulder, and with nearly a whole hand in his mouth, he grunted out—

“I don't know.”

Pride must have a fall, and poor Sammys did. Everything had gone on so swimmingly in the interview with the two doctors, he had no thought of being asked anything he could not answer.

Indeed, he had been so occupied in studying





the bones and cartilages, it had not once occurred to him that there was anything else in the human body but these. If he had been asked to make a doll-baby for his little sister at home, it would have been patterned exactly after the skeletons which hung in the closet. The little girl would, without doubt, have run away in a panic of fright from a doll-baby, if presented with one such as Sammy would have made. But that Sammy would have stopped short, after making the bones of the fictitious infant, there can be no question.

Many grown people, in pursuing a fixed purpose or a favorite study, do so just as blindly as Sammy did when he was studying the skeletons, and see nothing—absolutely nothing—but the one pet object or idea. When, therefore, a person of this character attempts to “soar aloft” in the atmosphere of those of more general knowledge, he suddenly finds one of his wings scorched, just as a fly does when





it defies the blaze of the gas or candle-light, and falls giddy and helpless to its proper level.

A long pause followed after Doctor Winkles asked the question which brought Sammy to a dead silence, broken only by the words, "Don't know." Doctor Hubbs himself waited, without easing up on the boy, thinking perhaps, during the winter's study, he had learned something of the offices of the muscles as well as the many other things with which he was surprised to find Sammy familiar. But, at last, seeing the boy was perfectly broken down with mortification, he said to him pleasantly:

"Well, Sammy, you have learned more during the winter than I should have supposed it possible, with all your fires to make, ashes to sift, and snow to clear from the steps and walks; and Doctor Winkles will say with me that you are deserving of great credit."

"Credit!" echoed Dr. Winkles. "Why, Sammy, I declare you are a literary curiosity, for





one of your age, as much as my Louis Napoleon Bonaparte is a zoological curiosity!"

Sammy did not quite know whether this was a compliment or not, as he did not feel sure



DR. WINKLES' BOY, LOUIS NAPOLEON BONAPARTE.

what "literary" meant, and had no idea whatever as to the meaning of the word "zoological." He determined to look at the dictionary as soon as he could, which is the best thing my young reader can do if he does not know.





The boy felt pretty sure, however, from the manner of the Doctor, that the remark was one designed to give him encouragement.

"My Louis Napoleon," continued Doctor Winkles, "does not know this moment that he has any bones; while I will wager a hat his skull is as thick as Sammy's femur!"

"I know where the femur is," interrupted Sammy, pointing at the same time to the bone of the leg between the hip and the knee.

"It is," continued the boy, "commonly called the thigh-bone, and the largest one in the body. Its lower end forms part of the joint of the knee, and the upper end forms part of the joint of the hip."

Sammy was again elated to notice the two doctors casting glances of pleasant surprise at each other, and, as if to keep up their happy astonishment, he went on to say—

"I know, too, how the bones of the arms are put together. "Here," pointing to one of the





shoulder-blades, "is the scapula, and here, taking hold of the arm above the elbow, "is the humerus;" then pressing the ends of the thumb and fingers of the right hand into the middle of the soft part of the left arm below the elbow, he continued, "the inner bone of this part of the arm is the ulna, and the one outside is the radius; then come the eight small bones of the wrist, called the carpal, and five longer ones called the metacarpal, ending in joints for the thumb and four fingers; and, lastly, the bones of the fingers called the phalanges."

Here Sammy closed his fingers upon his hand and said: "I now close my phalanges;" then, bending his arm together so that his fist touched his shoulder, he said, "now I bend my elbow-joint and bring the ulna and radius of my forearm up to my humerus."

Doctor Winkles then placed his finger upon his neck or collar-bone, and asked him what he called that.





"The clavicle," promptly and proudly responded the little anatomist, whose eyes by this time beamed with enthusiasm. He felt himself such a complete master of all he had been repeating, the mortification which overcame him but a little while ago was gone and forgotten.

"I have wanted, Sammy," said Dr. Winkles, "to introduce my Louis Napoleon to you some time, and see if you can find the place in his skull where an opening can be made for the introduction of a little of your good sense and ambition. Why," continued he, turning to Doctor Hubbs, "that stupid boy of mine will sit in the hall all day long, chewing twine and cracking his knuckles, rather than open a book or ask a sensible question. By the way," again addressing himself to Sammy, "can you point out the knuckles?"

The boy stopped to think a moment.

"Why, you know that, Sammy," said Doctor





Hubbs, with a look of surprise; "a smart boy like you knows where the knuckles are if Louis Napoleon knows enough to crack them!"

"Oh, yes!" exclaimed Sammy, "of course, I do. Here they are," pointing to the joints upon which his fingers bend in closing his hand. "I knew well enough," continued he, with a laugh, showing embarrassment, "but I could not think, just then."

Just at this time the Doctor's bell rang, and Sammy sprang to the hall with his usual promptness.

"A remarkably smart boy, that," repeated Doctor Winkles, rising from his chair. "He is a real prize. When you get tired of him, send him around to my place."

Here, a tall, pale-faced woman, coughing terribly, entered the Doctor's room, and Doctor Hubbs, giving his medical guest a good-bye shake of the hand, closed the door and entered into conversation with the patient.





Sammy went to look up Sponsie, thinking to himself that, if all Doctor Winkles said of Louis Napoleon Bonaparte was true, he was not very anxious to become acquainted with him. "My Sponsie is a smarter monkey than he is," muttered the boy to himself. Just as he said this, a small snow-ball, about as large as a walnut, struck him right between the eyes, and spattered water into both of them. Before he could wipe them out to see who threw it, another hit him right in the ear and stayed there; then another, quickly following, struck him right under the nose, a pretty large piece going into his mouth, which by this time was wider open than his eyes could be with the snow-water in them!

"Stop that!" shouted Sammy, at the top of his voice; "stop that, I tell you! Biddy O'Flanagan!" for he thought it was the chambermaid, pelting him from the top of the stairs.

Next came Sponsie himself, with one leap,





upon Sammy's shoulders, and commenced rubbing some snow in his face!

Sammy had to laugh, although he was never so vexed. He grappled with the monkey who, for



SAMMY SNOW-BALLED.

the first time in his life, "showed fight." But Sponsie had that morning been witnessing just such scenes and encounters in the streets, from the snow-balling, and face-rubbing to the squabbles, ending in the quarrels between the boys, and he simply did as he had seen the boys

do, when he struck back and grabbed Sammy, at the moment Sammy grasped him. It took quite a little time for Sammy to get the mastery of the monkey, and then poor Sponsie had to go to jail — again became a prisoner in the dark.





closet — not knowing or for the life of him guessing why, for he knew very well that none of the boys had gone there for the same offence, or it would be altogether too full for him. Poor Sponsie!





CHAPTER XI.

SAMMY TRIES HIS KITE — TALKS ABOUT THE
MUSCLES—THE TERRIBLE LOSS OF SPONSIE—
SAMMY'S GRIEF.



It was a windy afternoon of the third week of the third month, as a good Quaker would express it, that Master Sammy ascended the steps, after having, for the first time, tried his kite, which had been standing in the attic for a year. The Doctor had felt it his duty to drive the little student out for exercise, for he had confined himself quite too closely with his work and his studies.

“Why back so soon?” inquired the Doctor,





who was just opening the door and politely bowing out a patient. "You know I told you Biddy had nothing else to do but to attend the bell, and you may have just as well stayed an hour as thirty minutes," taking out his watch to see if he was not correct in estimating the time the boy had taken for play.

"Wait, and I will tell you," replied Sammy almost breathless; and as he nervously entered the door, the kite bumped first against the steps, then against the sides of the door-way. "The kite's too large for this wind. Several times it took me off my feet. I only let out about fifty feet of line, and I had all I could do to hold it. Jimmy Beck helped me fly it, and it cut our fingers awfully; and whenever he let go, I really thought I should go 'up in a balloon.'"

"Well, then, Sammy, you must improve the first pleasant day Biddy can be spared to answer the door-bell, and take a good long play-spell. The weather is so blustering, prob-





ably few will come in, and, as I. have no calls to make, we will talk up that matter that puzzled you so much when Doctor Winkles was here."

Sammy's black face reddened so that a blush was visible in his sable countenance, for, although he desired to talk with the Doctor about it, the mortification he felt would suddenly return and choke him so that he could not speak. But do not, my young reader, imagine that Sammy had remained in ignorance on this point for nearly two weeks. The first moment of leisure he had after Doctor Winkles' call was seized upon to look up, in one of the books in the Doctor's library, information which would enable him to answer that unexpected question if it should again be put to him.

The Doctor, seeing the boy disturbed by even an allusion to it, said—"Well, never mind that now, my boy; what do you choose to talk about?"





"Oh," replied Sammy, brushing his hand over his face, as if to remove all indications of agitation, and looking up with an expression of confidence—"if you please, Doctor Hubbs, we will talk about that,—just that and nothing else. Will you be so kind as to ask that question again?"

"If I remember rightly," responded the Doctor, "the question was something like this: 'You have arms, legs, hands and feet of bone as represented in the skeleton; now, how do you move them in rolling hoop, walking, playing ball, or in flying kite?' This may not be just as Doctor Winkles asked it; nevertheless, it is the substance of the inquiry. Do you wish to have me answer it for you?"

"No! Oh, no!" exclaimed Sammy, hurriedly. "I know now. All these motions are produced by what are called the muscles."

"Ah, how did you find that out?" inquired the Doctor, with a look of satisfaction at the





enthusiasm and readiness exhibited by the boy.

"By the books; I went to the library that night before I went to bed," said Sammy, with a shake of the head. "I never felt so ashamed in all my life as I did when Doctor Winkles asked me that question. Before I went to sleep I found out that the human body had over five hundred muscles, and that it took ninety-eight of them to move the arms and their appendages, and one hundred and eight to move the legs, feet and toes, in all the various directions in which those parts can be moved.

"Why," continued the boy, assuming a tone and expression of great earnestness, "the reason that skeleton will not stand alone is because it has no muscles."

"But," asked the Doctor, "would it stand alone with muscles and without life?"

"Didn't think of that," slowly replied Sammy,





THE TROUBLESOME MONKEY.

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casting his eyes down as if a new idea had entered his head; "but," again raising them with a twinkle, "I guess the muscles could do as well without life, as life could without muscles!"

"You are right, Sammy Tubbs," rejoined the Doctor, with a suppressed laugh. "A dead man with muscles cannot stand erect or walk, and if life could be put into the skeleton, it would still have to have muscles for the life forces to act upon, to do so simple a thing as to stand up.

"Just that one thing of standing erect, without support, is almost marvellous, when you stop to think of it," continued the Doctor. "If the feet were broader than any other part of the body and as heavy as lead, there would be nothing strange about it. But there are your feet, covering not more than sixty square inches when placed together, and still you can put one right against the other and stand erect.





This you do in part by the muscles of the legs and feet acting upon and supporting the bones of the same. Then, to the aid of that effort, comes another of the muscles of the body, so inclining the latter as to assist in, keeping your balance. In a baby just learning to stand alone, you will notice how much of a feat it is to stand upright without taking hold of something. The little thing totters, throwing up first one hand and then the other, using, in fact, all the muscles of the body—those of the arms and hands as well as those of the body and legs. Practice, by and by, enables it to stand alone without balancing itself with its hands and arms, and finally the muscles become so completely controlled by the senses that the will is not consciously exercised."

During the time the Doctor was speaking, Sammy seemed to be deeply interested, and sat unmoved in his chair while the philosophy of





standing erect was being explained. At that moment his feet moved together and he stood up straight upon them. As the Doctor was concluding his remarks, the little listener commenced walking back and forth in the room for the purpose of observing just how he performed that movement.

How many little boys and girls do all these things without once thinking *how* they do them! They forget all about how difficult it was, when they first left their mothers' laps, to stand alone; they do not remember how, after learning to stand alone, they had to suffer many a bump on the head and nose in learning to walk. So they move around on feet of which they know nothing, using legs of which they are no less ignorant, and arms and hands at play which would look as strangely to them, if the flesh were to be laid open to the bone, as a fossil dug from the depths of the earth. How many of you, do you think, could have





answered the question which Doctor Winkles put to Sammy?

Sammy was walking the room, when I last spoke of him, and he continued to walk after the Doctor stopped talking, so engaged in thought that he did not notice his preceptor gazing intently at him.

"What is running through your brain now?" asked the Doctor of Sammy.

The boy started, as if awakened from a doze.

"Oh, I was just noticing," said he, "how I use every part of my feet and even my toes in stepping. It almost seems as if I propelled myself forward by my toes. As I put one foot before the other I rise up on the ball of the foot behind and, with a motion of the toes which is not perceptible without close attention, I give a slight spring forward;" and as Sammy said this, he illustrated the action of the feet by doing it slowly and making the spring from the toes of the foot behind suffi-





ciently striking to enable the Doctor to observe it. Then he drew his toes up in his shoes and resumed walking, to show the Doctor how stiffly he would have to step and how little elasticity there would be in it if the toes were to be removed.

You need not be told that Doctor Hubbs was greatly pleased to see this disposition on the part of his pupil to put all they were talking about to a practical test, and, seeing the interest of the boy on the subject of the muscles, he stepped to the closet to find a large picture representing all the external muscles of the body. Just as he was stepping up into a chair to look on the shelf for it, he was startled by three loud and rapid pulls at the door-bell.

Sammy flew to the door, and the Doctor involuntarily grasped, first his case of medicines and then his case of surgical instruments, not knowing which was to be wanted.





"Mister, Oh, Mister," cried out a boy, looking as if nearly frightened out of his seven senses. "Your monkey has gone up—gone up—he has—he has gone up!"

"Gone where?" shrieked Sammy, who immediately caught the boy's alarm.

"Gone? gone where?" repeated the Doctor, who rushed to the spot not much cooler than the boys.

He would have been less alarmed, if it had been a sudden call to a patient, for he was used to such an interruption. But this was a strange call.

"What do you mean?" quickly cried both the Doctor and Sammy at once.

The boy was too breathless to say more than he had said, but motioned to them to follow him, as he ran off the steps excitedly; and all three ran as if the police were after them, till, suddenly stopping, the urchin pointed frantically up into the sky.





SPONSIE ATTEMPTS TO FLY THE KITE BUT THE KITE FLIES
SPONSIE.



“Gracious goodness!” exclaimed the Doctor, who was not at all used to employing extravagant expressions.

“Halloo! Halloo!! Halloo, there!!!” screamed out Sammy, putting particular emphasis on *there*, not knowing himself what good such a call would do.

It pains me while I tell you—I can really hardly break the sad news to you, my dear young reader. There was Sponsiē, fully one hundred feet high, dangling at the end of a kite string, sailing rapidly away to the westward. He was wriggling and shaking frantically his little skull-cap at the boys he had left below.

Both the Doctor and Sammy ran in the direction the kite was taking, and called on all the men who wore blue coats with brass buttons to aid them in the pursuit. Reaching a point a little in advance of the kite, they gained entrance to a house, and, in a moment more, were, with a group of others, upon the





roof of a six-story building. But, by this time, the kite with its restless freight was just about as far away from them as when they first saw it, and had they been directly under it, a pole,



fully one hundred and fifty feet long, would have been required to reach the poor fellow.

The Doctor, after a few panicky movements, cooled down a little and, turning sadly to Sammy, in a tremulous voice, exclaimed — “It is all up with Sponsie

SPONSIE AS HE LOOKED WHEN

LAST SEEN

now! — nothing in the world can save him; and heaven only knows if he will ever come down.”

Sammy buried his face in his hands, and sank upon the roof, weeping bitterly. He had





hardly strength enough to get down stairs, and the more the Doctor and the crowd about him tried to pacify him, the harder he "took on."

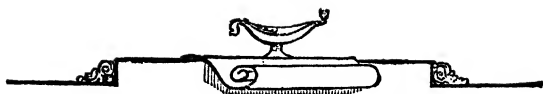
Sammy and Sponsie had been the most intimate of friends for over a year. Indeed, the little office-boy had been too busy to form many new acquaintances, and Sponsie was his comrade as well as his toy. He had been to him a plaything and playfellow in one.

Poor Sammy took no supper that evening, and he felt so badly, that the Doctor kindly told him he himself would see to the preparation of the kindling-wood, and other little chores, and let him go to bed.

Sammy went to bed, but not to sleep. He cried till he had no more tears, and then tossed about for the balance of the night, in a most wretched frame of mind.

Before I close this chapter you will want to know how it was. Well, you see, Sponsie was





out with Sammy when he and Jimmy Beck were trying the kite, and the string hurt Sammy's fingers so, he tied the cord about his body under his shoulders. Sponsie saw him do this; so, when he, unknown to Sammy, stole out of the house with the kite, and went among the boys who were flying their kites in all directions, he did the same thing before letting the kite out far. Pretty soon the line ran through Sponsie's hands and hurt them so he was glad to let go, and no sooner did the line go out its full length than Sponsie began to rise in the air.

The boys said the monkey tried at once to loosen himself from the cord, and at first worked with his fingers at the knot; but when he had ascended as high as the house-tops, he seemed to give no further attention to the knot, but twisted and struggled in a frantic manner to get away from it.

The Doctor hired men to start at once over





into New Jersey to see if they could hear any thing of Sponsie, and if they return with good news you shall have it as soon as it is received. The Doctor told the family, however, as they were going to bed, that he entertained no hope whatever that Sponsie would ever be found alive.





CHAPTER XII.

THE RETURN OF THE MEN SENT OUT TO FIND SPONSIE—TALK ABOUT THE MUSCLES—TELEGRAPHING A REWARD FOR SPONSIE, ALIVE OR DEAD—SAMMY'S UNSELFISHNESS.



WHILE the family were at breakfast, the men who had been sent out to look for Sponsie returned, having been gone all night in prosecuting the search. No one on the other side of the river had seen him, excepting the officers and passengers of one of the Pavonia ferry-boats, plying between Twenty-third street and the Erie depot. It appeared from the statements of the ferrymen that the kite lowered while crossing the river

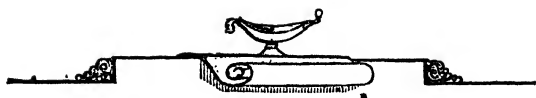




so that the monkey was at one time not more than thirty or forty feet above the deck of the boat. The curious spectacle of a live monkey dangling at the end of a kite-line occasioned a great deal of sport among the passengers, who would probably not have felt so merry over it if they could have known how wretched its little owner was at that minute feeling over the tragical event.

The monkey was making all sorts of signs and noises — shaking his little cap frantically, kicking his feet in all directions, throwing out his arms, and chattering wildly. The kite was sailing off gracefully about one hundred and fifty feet beyond, sometimes dropping down a little and then rising again with a bound, according to the varying waves of the wind. With each rise and fall of the kite poor Spon-sie was compelled to go up and down in unison therewith, as if it were by his consent. The last the officers of the boat saw of the kite





and monkey, they thought they were rising somewhat higher and moving in the direction of Hoboken.

Sammy ate little breakfast, but was not greatly affected by the report of the men, for all hope had fled during the gloomy darkness of the night. If anything, he felt a little encouragement when told of the ferrymen who had seen Sponsie; but he thought the passengers of the boat were perfectly heartless when they laughed at poor Sponsie, dangling in the air so helplessly.

The morning papers came in soon after breakfast, and they were eagerly opened by the boy to see if there was any advertisement of a monkey found. But the Doctor told him that it was quite too soon to look for anything of that kind in the advertising columns of the papers, even if Sponsie had alighted and been picked up by some humane body.

"If," said the Doctor, "the monkey could





have caught hold of something—a post, or tree, or a chimney-pot—his muscles would undoubtedly have saved him. There is something,” continued he, “very curious about the strength of the muscular bands of the body. They will bear more than double the strain in the living body than they will when removed from a person immediately after death. *

“What are the muscles made of?” inquired Sammy, who turned with his usual interest to his favorite study, notwithstanding his affliction.

“Those which we move in using our arms and legs seem to be made up of fibres of flesh, which under the microscope appear to be composed of still smaller fibres, just as ropes are made of fibres of hemp, flax or cotton,” replied the Doctor.

“And are these fibres hitched at their ends to the bones?” inquired Sammy.

“Most of them,” said the Doctor, “terminate in what are called tendons, which are shorter,





harder, tougher and stronger than the muscles, and these tendons are fastened firmly to the



THE FRONT MUSCLES OF LEG AND FOOT.

bones. But the tendons do not stretch out and shorten up like the muscles; their sole purpose seems to be to make strong fastenings to the hard bones, just as the leather straps at the ends of your elastic suspenders, over your shoulders, are to make firm fastenings for your buttons. The power of the muscles to contract or to shorten," continued the Doctor, "is very, very wonderful. I presume you have seen an angle-worm stretched out to its

full length?"

"Yes," replied Sammy; "and I have noticed how quickly it will shorten from four or five inches in length to only an inch or two





when I touch it. Is that the way the muscles do?"

"Very much like that," said the Doctor. "When you bend your arm so as to lay your hand on top of your shoulder, the muscles on the inside of your arm, performing this motion, contract just like the angle-worm when you disturb it, and the muscles on the back of the same arm stretch out like the worm, when it is extended to its full length."

"Oh, I see!" exclaimed Sammy, but as a new thought struck him, he said—"I don't know as I do, after all. I don't understand what makes the muscles contract on one side and lengthen on the other. The angle-worm draws all up together because my meddling with it disturbs it, but what disturbs the muscles when they contract?"

The Doctor saw that he would have to think pretty fast to keep up with Sammy's active brain. The boy was disposed to follow these





questionings about visible or material things right along into those which appertained to the invisible, spiritual, or unknown.

"The contractions and relaxations of the voluntary muscles," replied the Doctor, "are affected in some way by the action of the mind. Physiologists are not of one opinion as to the agency which the mind employs. My view of the matter is that the mind sets in motion a wave of animal magnetism upon those muscles it desires to contract, and that this wave furnishes the irritation, capable of making it shorten in length, and thicken in size, like the angle-worm when touched."

"And what is animal magnetism?" asked Sammy, before the Doctor had fully completed the sentence. The little fellow was after his preceptor, sharply.

"Well, Sammy," responded the Doctor, with a smile, "you are driving me pretty closely to the wall. We don't any of us know what





magnetism and electricity really are. We only know of them by their action and effects. Sometimes in a thunder-storm a bolt of electricity, which we call lightning, descends with greater velocity than was ever given to a cannon-ball, and, meeting in its path a sturdy oak, which would take you and me all day to chop down, it sends it reeling, splitting and crackling to the ground. Herein we see its marvellous power, but just what electricity is the scientists have yet to tell us. It was Benjamin Franklin who, in the well-known experiment with the kite and the key, demonstrated that lightning is the same as the electricity which we can produce by mechanical means, and of which you can learn by turning to any school-book on Natural Philosophy.

"Electro-magnetism," continued the Doctor, "is produced by suspending plates of zinc and copper, or zinc and platinum, in cups of powerful acid, thereby generating a current of





galvanism, and then passing this current through what is called a helix, which is a cylinder of coiled copper-wire with magnets. With proper conductors a current of electro-magnetism may be obtained from a machine of this construction, of sufficient strength to put any muscle to which it is applied into violent contortions. Taking the conductors into your hands the muscles will so closely shut them, that you cannot, if it were to save your life, drop or let go of these highly-charged conductors. Here is a very striking illustration of muscular contraction produced by electro-magnetism. A book of Natural Philosophy will tell you all about this machine also."

"Now, then, there are certain processes going on in the human body, which produce a force considerably like electro-magnetism, and we call it animal magnetism. Under the influence of the will, or the determination of the mind, it may be concentrated upon certain muscles and





as quickly withdrawn from other muscles; those which receive it instantly contract, and those from which it is withdrawn as immediately relax or extend. This, according to my idea, is the way in which muscular movement is effected, whenever you perform voluntary motion. In walking, using the hands, or bending the body, you are so thoroughly practised, you may not be conscious of any effort of the will in making these movements, but the will is quietly at work and the magnetic waves are as imperceptibly sent to and withdrawn from the acting muscles, nevertheless.

“Each of the voluntary muscles is covered with a membrane called the sheath, which separates it from other muscles, and it may be this sheath is a non-conductor of this magnetic influence, so that the force may be confined to the particular muscle designed to be exercised. Nearly all muscles of voluntary motion go in pairs, so that when the arm, leg or other part



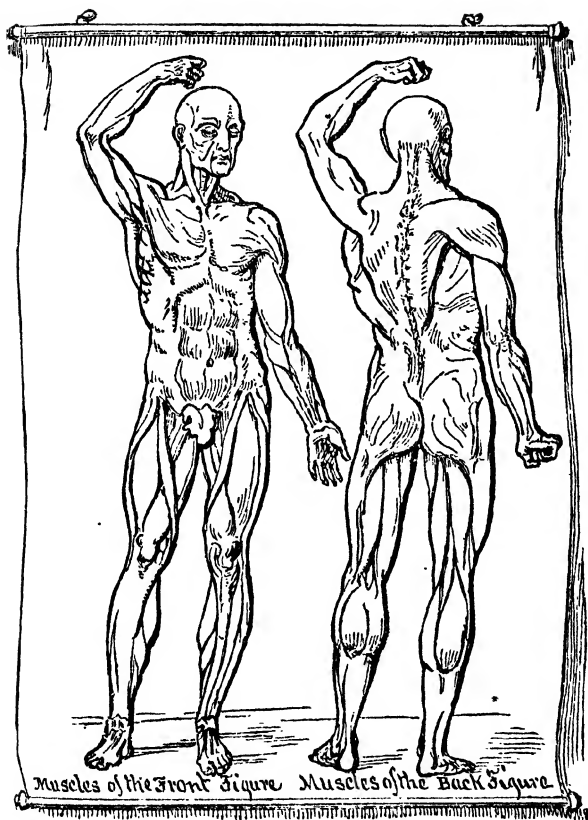


is moved in one direction, the opposite muscle may move it back again, or to the opposite direction."

During this explanation of the philosophy of muscular motion, Sammy forgot all his sorrow, but as the Doctor took a chair to again look for the anatomical plate representing the muscular system, it at once flashed over his mind, how startled he was yesterday, just as the Doctor was stepping up to look through the closet shelves. As the Doctor turned from the closet with a large and beautiful plate of the muscles—which I will here reproduce for the benefit of my young readers—he saw the tears streaming down Sammy's face as if his heart was breaking with emotion.

Dr. Hubbs quickly remembered that it was while he was looking for this very thing the day before, that he and Sammy were interrupted with the startling announcement that Sponsie "had gone up."





THE MUSCLES OF THE BODY.



"Shall I put it back again?" sorrowfully asked the Doctor.

"No!" said Sammy with a struggle as he quickly wiped the tears from his cheeks. "No, out, Doctor, I can't look at it now. Won't you hang it on a nail and leave it where I can look at it by and by."

"Certainly, my boy, I will, if you wish it," replied the Doctor. Then, fastening the picture to the wall, he put on a light overcoat and started for one of the telegraph offices. Sammy's tears were too much for his kind heart, and he determined to try one more plan for obtaining, if possible, some intelligence of Sponsie. What do you suppose he did? He sent telegrams to the Mayors of Jersey City, New Brunswick, Princeton, Trenton, and several other large places in New Jersey, authorizing them to offer the policemen one hundred dollars reward for Sponsie, if returned to him alive, or ten dollars for his body, if dead.





Returning to the house, he found Sammy dusting the office things, while the tears still filled his eyes faster than he could wipe them away. When he told the afflicted boy what he had done, his eyes gleamed with delight as the Doctor spoke of one hundred dollars for Sponsie alive, but a cloud suddenly overcast his countenance as he heard him speak of the reward of ten dollars for the body, if dead.

"Are you sorry that I have offered a reward for his dead body, if found?" asked the Doctor.

Sammy first said, "Yes, sir;" and then, after a sob and pause, he said quite as distinctly, "No, sir," and lightened up a little. "I can't bear the idea of seeing Sponsie brought home dead," resumed Sammy; "but if he really is dead, I want his body to dissect."

"Why, Sammy!" exclaimed the Doctor, with surprise, "you could not have the heart to cut up Sponsie's body, could you?"

"Yes, sir," said Sammy bravely, wiping the





tears from his eyes and straightening up, as if he felt it a weakness to be thus weeping. "Yes, sir. If I am going to study to be a doctor, I might just as well commence by cutting up my friend Sponsie as to be cutting up the brother or sister of somebody."

This indication of a fine sense of justice and unselfishness on the part of Sammy was very pleasing to the Doctor. It is certainly questionable whether, according to the "golden rule" of "doing unto others as you would have others do unto you," a student of medicine has any moral right to dissect the body of another if he would not be willing to have even his own body laid open for the same scientific purpose after death.

These reflections passing through the mind of the Doctor, he grasped Sammy's hand warmly, and said:

"You are right, my boy. I see you are starting in life with principles which will be of value





to you, not only in this world, but which will cling to your soul as priceless ornaments when it passes out of the body which, after all, is no more to us than the shell is to the tortoise."

As the Doctor concluded this sentence, the interview was interrupted by the call of a patient, and Sammy set himself to work to catch up with his day's duties which had been interrupted by the events of the morning.





CHAPTER XIII.

THE MONKEY-SHOW — NOT ONE LIKE SPONSIE —
THE BLACKSMITH'S ARM, AND WHY IT WAS
SO LARGE — THE VALUE OF MUSCULAR EX-
ERCISE — THE BACKWOODSMAN AND THE SICK
MONKEY — IS IT SPONSIE?



YOU would have laughed,
every one of you, till
buttons, and hooks and
eyes flew in all direc-
tions, like sparks from
an anvil, if you could
have been present the
day after Doctor Hubbs
sent those telegrams to
the Jersey Mayors, offer-
ing a reward of one hun-

dred dollars for Sponsie! The Doctor never
dreamed of there being more than one lost
monkey in that little State. Judge of his sur-





prise, then, when I tell you that, before noon, there were seven men and boys, with seven monkeys of all sizes, and every variety of expression, from shape of face, to length of tail, in one room at the Doctor's residence, awaiting his return.

The Doctor had been called out before daylight to attend a very sick patient, and the men and boys would not accept the assurances of Mrs. Hubbs and Sammy, that each particular monkey was not the lost one for which the Doctor had advertised and offered a reward of one hundred dollars.

After Sammy had given a perfect description of Sponsie, each man and boy at once tried to trace out a resemblance in the one he had brought, insisting upon it that the one he had must be Sponsie. Each one also disparaged the claim of the other whenever Mrs. Hubbs and Sammy turned their backs for a moment. At such times there would be a regular Babel



THE SEVEN MONKEYS IN SEARCH OF A W. T. R.





of tongues, mixed up with the whistle, chipper and chatter of the monkeys, together with no small exhibition of bad temper, for each one wanted, if possible, to secure that one hundred dollars!

There is something very sad and mournful, in witnessing a group of anxious people going through the Morgue or Dead-House, in search of a deceased friend who is mysteriously missing; but here was a sight equally emotional in the opposite direction. Seven live lost monkeys, backed by seven interested finders, looking for one real live owner.

Sammy would go into the room and look around among them curiously for a few minutes, biting his lips to escape from bursting with laughter, and then go out and jump up and down, and throw his hands and arms wildly about, laughing like one with a hysterical fit. Perhaps there may have been hysteria in it, for Sammy had been laboring under





so much depression of spirits, since the loss of Sponsie, it may have been that this grotesque exhibition of monkeys in search of their masters produced a kind of frantic emotion made up of grief and mirth, in which the latter obtained sufficient control to break out in strange convulsions of laughter.

It was nearly twelve o'clock before the Doctor returned, and you should have seen that humorous face and those large roguish blue eyes to appreciate the spectacle.

The moment he entered the room, every one sprang to him with a monkey for recognition. Each one impudently insisted that the one he had was the original Sponsie, as if the Doctor did not himself know the playful fellow that had been in his house for a twelvemonth. Finally the Doctor, getting somewhat out of patience with the deafening clamor, ordered them all out, but it took some moments to clear the room, because each one left so reluct-





antly. Reaching the sidewalk, the men and monkeys still lingered, as if hoping that the Doctor would change his mind and father one of them.

While they were standing there the Doctor called Sammy to the window to point out the marked muscular development of one of the men; and, finally, he stepped to the door and asked him to come in. Supposing the Doctor had decided to claim his monkey, he sprang forward with an expression of great delight and dodged inside of the door, while all the others attempted to follow. But the door was immediately closed, whereupon the Babel of tongues was resumed outside.

One did not believe the Doctor had lost a monkey, but that it was a trick to get his pick out of a lot which would be brought to his house. Another didn't believe he would know his monkey if he saw it. Another would bet a hat—while the one he had on would not





have been picked up in the street—that “that monkey that feller had was a South-American monkey and never saw the coast of Africa at all.”

Still another claimed that the one he had “knowed that ’ere little nigger boy and wagged his tail every time the little nig spoke to him.”

But we will turn from this war of words without, to the interesting interview within. The Doctor found that this man was a blacksmith, and he was showing Sammy how much larger the right arm of the smith was than the left one.

“Can you tell me why it is so?” inquired Sammy of the blacksmith.

“S’pose I was born so,” replied the smith, who did not seem to possess the amount of intelligence commonly found among this class of mechanics.

Sammy was rather disposed to accept this





explanation, looking up inquiringly into the face of the Doctor, as if not quite certain.

"I am inclined to think, Sammy, that you can tell this man better than that, can't you?" asked the Doctor.

"Is it because the muscles of the right arm grow larger than those of the left?" inquired the boy.

"Well, yes," responded the Doctor; "but can you not tell me why they grow larger?"

While Sammy was thinking, the blacksmith broke the silence with his strong, rough voice :

"What's the use of botherin' that black boy's head with them 'ere questions? I tell you I was born jist so. I allus had one arm bigger than t'other."

"You are mistaken," replied the Doctor in a quiet, cautious tone. "I greatly desire that my little colored boy should know the true reason, and if you have no objection, I will inform you at the same time."





"All O. K. Go ahead, boss ; but don't stick none of them 'ere steel things into my meat," gruffly responded the smith, pointing to the surgical instruments, with a coarse chuckle.

"Then," continued the Doctor, "I will tell you. The muscles grow larger and stronger by exercise. This man uses his right arm very much more than he does his left. To some extent we all do, all who are not left-handed, and in almost all persons you will observe a slight difference between the size of the left and right arms, the latter being a trifle larger. This is especially true of those who do heavy work in the field or shop. In the arms of blacksmiths the difference is more noticeable because, while in much of their work they are resting a bar of red-hot iron on the anvil, simply held by pincers in their left hand, the right one is wielding a heavy hammer, as heavy as you, Sammy, could lift with both hands. This comparative resting of





one arm and heavy working of the other, day in and day out; is just what makes the difference between the two arms."

Sammy was just about to say something, when the smith broke out with—"Guess you're right, boss; I never thought nuthin' about it afore; but Bill Lyons and Jake Miller that works in the same shop I do, has got jest such arms as these 'ere."

"Well, then, you see," replied the Doctor, paying no apparent attention to the grammar of the man, "my explanation of the matter is more probable than it would be to suppose that you, and Mr. Lyons, and Mr. Miller, were all born so."

"Boy, yer boss has got the start of me this time," exclaimed the smith, shaking all over with good humor. "You fellers has time to learn all them 'ere things but," gathering up his monkey and moving toward the door, "they ain't much use, no how."





As the man closed the door after him Sammy asked the Doctor if *he* "did not think there was some advantage in knowing that one arm exercised more than the other grew larger and stronger."

"Certainly," said the Doctor, "but can you tell me, Sammy, what conclusion you are able to draw from the fact?"

The boy had a vague idea of what he wanted to say, but had to stop for a few moments to put it in the right form for utterance. Breaking the silence, the Doctor added: "The muscles of the arms and legs of gymnasts, and the legs of dancers, are always larger and stronger than those of people who do not exercise their limbs, and the muscles of the wings of birds that fly are larger and stronger, in proportion to the rest of their bodies, than those of the wings of fowls which mainly use their legs. You have noticed how much broader and deeper the breasts of birds are, in propor-





tion to their size, than those of the domestic fowl. Then, again, the fowl has the advantage of the bird in legs, and all of this difference in muscular development is owing to the fact that the fowls use their legs, while the birds use their wings, and the wings having their support mainly from the muscles of the breast, the bird is ahead of the fowl in development there."

Sammy took all of this in on one side of the brain, while he was thinking what he wanted to say on the other, and, as soon as the Doctor concluded, he said:

"You wanted to know what I thought these facts proved. Well, now, it seems to me," said Sammy, "that they prove just this: if you want good, large, strong muscles, you must use them, and that if you don't use them they will be small and weak."

"You are entirely right, my boy," said the Doctor, with an air of pride; as he looked





down into the thoughtful eyes of Sammy. "This is a valuable lesson which every body, old and young, ought to learn. Especially should parents think of these things in raising girls as well as boys."

"It is quite the fashion," continued the Doctor earnestly, "for mothers to keep their little girls in-doors where there is not much to induce them to use their muscles, for the reason, they say, that they do not want them to become sun-burnt in face and boyish in manner. It is mainly for this reason that you generally find little boys more robust and healthy-looking than little girls. But there are parents who raise all their children, boys as well as girls, without exercise, and these children always have soft, flabby and weak muscles. Such parents generally know as little about the process of muscular development as that blacksmith, and if asked what made their children look so weak and puny, they would say,





'they were born so!' just as the blacksmith said he 'was born so,' when I spoke of his large muscular arm."

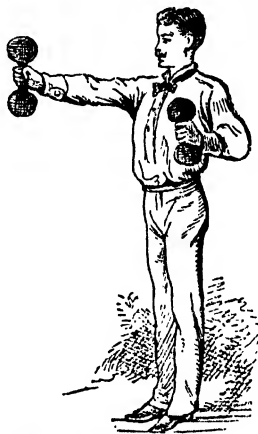
"Why," interrogated Sammy, with an expression of surprise, as the importance of this subject gained possession of his mind, "why don't people who have plenty of time and money learn all about the muscles, and how they may be made strong like that blacksmith's?"

"That question puts me into about as much of a quandary as the one asked by Doctor Winkles put you, Sammy!" exclaimed the Doctor. "People, old and young, are constantly studying how to make themselves look beautiful with fine dresses and trinkets, but entirely overlook the means by which they might obtain beauty of person. They will, for instance, tuck in pads of cotton here and there to produce that seeming fulness which they might obtain in reality by studying the laws of muscular





development. Unless our civilization becomes tempered with more good sense, and enlightened with a better knowledge of the laws of life and health, we shall, after a while, have a race of women, whose skeletons will be held up with stays of whalebone and cushioned with cotton, hair and pads of sawdust, instead of those who move about vivaciously, with elastic muscles and with skeletons clothed with strong muscular fibres, swelling here and there in graceful lines of beauty."



EXERCISE FOR THE ARMS.

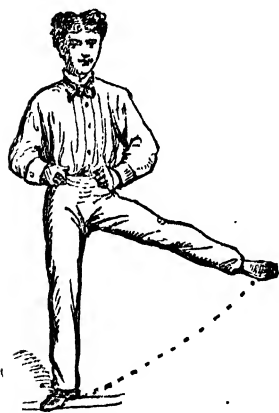
Sammy eagerly drank in every word dropped by the Doctor, and, as soon as he had finished, said: "Then, if I want a nice large arm, I must exercise it; and if I want a strong, well-formed





leg, I must walk, run, or dance a great deal,—must I?”

“There are those,” replied the Doctor, “whose occupations favor muscular growth and strength,



such as men who till the soil, and women who do washing and other hard work. But all men cannot be farm laborers or all women washers, nor do all wish to be; not, indeed, as many as ought to be,” added the Doctor, with some emphasis. “But

EXERCISE FOR THE LEGS. those who are compelled, by the quiet character of their avocations, while pursuing them, to give much rest to their muscles, should regard it as a duty to employ some of their hours of leisure in vigorous physical exercise. One who is sitting much





and using the arms, should devise and resort to some recreative exercises for the muscles of the legs. Those using the legs much, and the arms but little, should resort to exercises which will give motion and growth to the muscles of the arms. Then there are certain gymnastic exercises which, if practised, call into play all the voluntary muscles of the body. Doctor Dio Lewis has published a book, which gives a variety of series of exercises for every part of the body, which all persons, male and female, may learn and by which they may profit, if they cannot devise plans for themselves, for giving exercise to the muscles least used."

"How can you tell?" asked Sammy, "when you have exercised a muscle just enough?"

"That is very easily determined," responded the Doctor. "When you have exercised a set of muscles till they simply feel a little tired, it is just the right time to stop. If you carry it further, so that they ache or feel painful, then





you have carried it too far. You have, doubtless, after running, taken a scat, when the sense of rest became perfectly delightful. You felt a sense of fatigue, but it was not painful; just sufficient to make it feel pleasant to sit. Here you stopped at the right point. If you, however, while running, carried it so far as to become almost breathless, so that you sank down upon a seat perfectly overcome with fatigue, then you went beyond the point of healthful exercise.

Just as the Doctor concluded this sentence, the door-bell rang, and a man came in, bearing on his arm a poor, sick-looking monkey, which looked a little like Sponsie. As the man walked to the office-room, Sammy kept close at his side watching the animal sharply.

"That cannot be Sponsie," said the Doctor, "can it? If it is, he has changed very much by fright and exposure. What do you think, Sammy?"



Here the boy put his hand on the monkey's head and said in a low, gentle tone—"Sponsie, poor Sponsie!" As he did so, the little fellow opened his eyes with a piteous look.



THE SICK MONKEY—IS IT SPONSIE?

"I believe it is,—I really do believe it is!" exclaimed Sammy. "Didn't you see him look at me, as I spoke his name?"

"Yes," said the Doctor, taking the little fellow on his own arm, "but it does not seem





possible that our fat, lively little Sponsie has shrunk away to this. Where did you find him?" inquired the Doctor, turning to the backwoodsman.

"Wal, you see, wife and me war' sittin' down to eat our buckwheats yesterday mornin', when I heerd one of the hounds yelpin' like he had treed some game; so I took my rifle and went out to the oak-openin', and when I got thar, I saw that 'ere little rascal right up in the crotch of the fust limb. He didn't look so much like a sick know-nuthin', up in that thar crotch, as he does on your jug-handle; but he did jist look awfully scared."

"Did you find a string tied about his body, under his shoulders; or, did you find a kite near the tree in which you found him?" inquired the Doctor.

"No, I didn't find no string nor kite; nuthin' but the naked thing you see thar," replied the man. "I put a rail agin the tree, and clim





up and took him on my arm to the house, and my old woman give him a sweet apple, but he didn't munch it as if he was very sassy after vittles. Hearin' you had lost a brute of this kind, I thought I would fetch him over, and if it aint yourn 'taint no matter."

"I *do* wonder, Sponsie, if this *is* you?" said Sammy, patting the sick little thing on the head, and looking pitifully into his face. "If it is you, Sponsie, open your eyes again and move your tail."

Sure enough, the monkey did open his eyes and move his tail.

"It is—it is Sponsie!" cried Sammy, with joy. And again, the weak little thing opened his eyes and looked wistfully at the exultant boy.

"I do not know but it is," said the Doctor, as he raised the drooping chin of the little fellow on the ends of his fingers. "But, if **so** he is certainly very sick, and he has lost





flesh faster than I should suppose it possible for any animal to do in so short a time. You see it was only day before yesterday that Sponsie was here, as fat and sleek as you are at this minute," looking at Sammy.

"There! there!" interrupted the boy, as the Doctor was saying this, "did you see him open his eyes and move his tail as you mentioned his name? It is, oh, it is, my poor, lost Sponsie," said Sammy, with tears streaming down his cheeks, at the same time taking the monkey tenderly into his arms. "We must nurse him up. Do you think he will get well?" asked the boy of the Doctor, imploringly.

"It looks a little doubtful, I think," replied the Doctor, laying his hand on the little creature's palpitating breast, and observing every now and then a gasping as if for breath. Turning to the backwoodsman, he said—"You know I offered one hundred dollars reward for





our Sponsie alive, or ten dollars for his body, if dead. Now, here is a monkey which can hardly be said to be either dead or alive! What's to be done?"

"Oh, suit yourself," said the man, carelessly. "If the little villain gets out of that 'ere fix, pay me a hundred dollars, and if he don't, then give me an X."

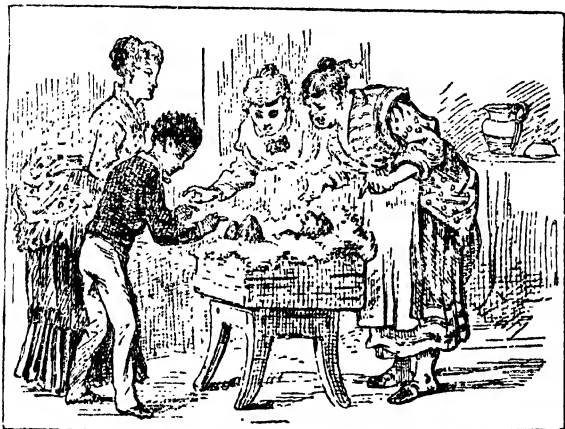
"That is certainly very fair," remarked the Doctor, as he drew his porte-monnaie from his pocket. "There is a ten-dollar note, and if the monkey does not get well, then you are paid. If he does recover, and if we find it to be our lost Sponsie, you shall receive ninety dollars more. If he gets well and we find it is not Sponsie, then you may have the monkey, and the ten dollars, already paid you, for your trouble."

"That'll do, 'squire," said the backwoodsman, placing the ten dollars in a little bag in which he seemed to carry both his money and





tobacco. "I drop in on you Yorkers when I get kinder short of change, and hev some game to shove onto you. Next time I come I'll drop in and see what you'll hev to offer."



THE DISCUSSION.

With this remark the man pulled his greasy slouch-hat more closely over his eyes and departed. Sammy took the little sufferer down into the warm kitchen and fixed a box with some raw cotton for a bed, and, as he was





doing so, Mrs. Hubbs and the servants gathered around, discussing the probabilities as to whether that was Sponsie or not. Mrs. Hubbs thought it was not; Biddy, the chambermaid, sided with Sammy that it must be Sponsie; but Bridget, the cook, laughed outright at the idea that they should think "that poor, wake, dirty little spalpeen was Sponsie Tubes!" as she pronounced it.

Sammy managed to get the sick monkey to take a little nourishment that evening, and, when he went to bed, with the consent of the Doctor, he carried the monkey, box and all, to his room, thinking that, perhaps, the little patient might need assistance during the night.





CHAPTER XIV.

HOW THE MORNING FOUND SAMMY AND HIS PATIENT—SAMMY'S BRILLIANT IDEA—THE UNCERTAINTY OF THE FAMILY REGARDING SPONSIE—THE CLOSE OF THIS VOLUME.



HE morning came with radiant face lighting the eastern sky, and it peeped in at Sammy's attic window. The objects in the room—the pictures from *The Graphic* and *Harper's* pinned against the wall; the armless and legless chairs which had gathered there from the better furnished rooms below; the variegated costumes of Sammy and Sponsie hanging together upon the nails, as, if symbolizing the intimate companionship of their young pro-





prietors; the little vases upon the shelves with nicks which could not be mended, and rough lines showing where they had been cemented; crockery-horses and china-dogs, and match-safe with odd-looking faces — all of these, which had been obliterated from view by the darkness, arose one by one from the oblivion of night and appeared in their accustomed places, looking as if joyous in their visible resurrection. Little shadows danced merrily on the walls as they sprang in the windows from the leafless limbs of the wistaria which climbed above the roof. The early spring birds alighted in the branches and warbled their notes of gladness, for the transient warmth of the day and the more enduring warmth of the summer were approaching. These little feathered prophets were looking forward from the budding boughs of promise, with instinctive faith, to the joys before them rather than from the disrobing tree-tops backward to those which were past





SAMMY NURSING THE SPOILED SPOUSE.



Nature, indeed, looked happy and hopeful, and in her uncontrollable exuberance had carelessly invaded the quiet room of our little doctor and his sick pet with her rollicking company. The dawn of the morning seemed as festive and bustling as the sudden advent to an inland village of a menagerie with its flapping tents and camp-followers with their ginger-pop.

Was Sammy in Nature's gay mood, and was Sponsie ready to chatter saucily back at the chirping birds? Alas! could you have peeped in as did the face of the morning, you would have found our little attentive nurse moving measuredly backward and forward in a wreck of a rocking-chair, clasping the poor sick monkey, which had barely strength enough to indolently open his drooping eyelids. The patient had spent a restless, and Sammy almost a sleepless night.

Doctor Hubbs, not stopping to dress, took it





into his head to look in upon them. He gave it as his opinion that the little creature the backwoodsman had brought them would not live through the day. Although this discouraging view of the case fell with great sorrow upon the heart of poor Sammy, the announcement was not so depressing as it would have been had he been fully certain that it was his much-loved Sponsie who was thus vibrating between life and death.

With all his anxiety and grief, however, Sammy's mind found time to reflect upon the subjects which had been talked over between the Doctor and himself, and after carefully laying his little sick pet down, preparatory to washing and dressing himself, he reopened the conversation of the preceding day by saying:

"From what you told me yesterday, I guess I know what is meant by gymnasiums and lifting-cures which I see advertised in the papers. These must be places where people go to exer-





cise their muscles, to make them grow large and strong. Last night I was thinking, while being kept awake so much by this poor little sick fellow, how nice it would be in large cities like New York, to have buildings for these exercises so made that the muscular strength now thrown away might be used for charitable purposes."

"Why, what do you mean?" inquired the Doctor, with surprise. "It can hardly be said that the muscular strength is thrown away when these exercises are so beneficial; and then how could this strength be employed for any charitable purposes whatsoever?"

"What I mean," replied Sammy, "is just this: In those gymnasiums and lifting-cures there is enough power thrown away to turn a big wheel. Now, suppose all the machinery for pulling, lifting, and so on, should be so fixed that a big wheel could be turned by the wasted power of the exercises; and then sup-

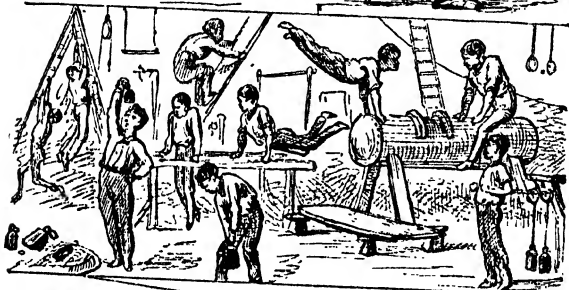




pose a belt should go around the wheel, like the one I saw at the machine shop, and, going through a hole in the wall into a larger room in the attic or somewhere else, this power could be used by the poor women for their sewing and knitting machines, and by poor mechanics, who want to make things by turning them upon a lathe; don't you see that while all those folks would be growing their muscles, all these poor folks might be growing better off?"

The Doctor's eyes sparkled with delight as Sammy said this. "Brilliant idea, Sammy, and a very humane one, too. I shall have to think that over and see if it be really practicable. It is possible that if large buildings were constructed in different parts of the city, by rich and charitable people, providing convenient rooms for all kinds of muscular exercise, that that exercise might be still further turned to account in providing a motor-power for industrious women and men.





Stephens

SAMMY'S ECONOMICAL COMBINATION OF A GYMNASIUM AND WORKSHOP.



"I must confess it looks feasible," resumed the Doctor, after a momentary pause, for the suggestion was to him a very novel one, and, too, very pleasing, emanating, as it did, in the mind of his little door-boy.

"I think," again added the Doctor, "I must speak to my rich and benevolent friends, Peter Cooper and Mr. Stewart, about it. They could put up such gymnasiums and lifting-cures in places convenient for our young men and women who are engaged in offices, stores, counting-rooms, and other places where they do not get exercise enough, and these young people might esteem it a great privilege to thus contribute to the industrious poor while taking to themselves the benefit of building up and strengthening their muscles."

As the Doctor thus enlarged upon the idea put forth by the boy, Sammy was too much engaged to do more than listen. His fingers became nervous and almost unmanageable - in



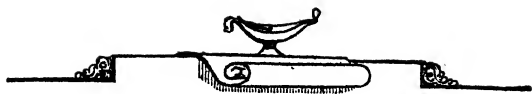


buttoning his clothes. In his boyish pride he thought he had perhaps rendered the Doctor and himself immortal by what had come to his anxious mind during the long, restless night; "and," thought he, "perhaps Sponsie's sickness and death may after all turn to advantage to mankind, because if Sponsie had not been sick, it may be I wouldn't have thought of it at all."

The Doctor, who had been gazing very intently at nothing in particular for a few moments, busy with his thoughts, finally made a remark which dampened the little fellow's enthusiasm.

Said he, raising his hand from the fixed position into which it had fallen: "I see a difficulty—I fear an insurmountable one, Sammy. People who work for a living could hardly wait for these uncertain gymnasts, acrobats, and lifting-cure invalids to turn the wheel. Perhaps, when all the industrious people were waiting in one room for the wheel to turn, there would





not be an individual one of those muscle-builders in the gymnasium to set it agoing."

Never did any of Sammy's air-castles tumble down so quickly as this one. For a few moments it seemed as if a reply was useless. The boy stopped the movement of his hand at the top of his shoulder as he was passing his suspender over it. His eyes were downcast, and he looked as if called to account for some misdemeanor.

Suddenly a new thought struck the lad. Said he, raising his head with animation, "I have seen elevators in houses worked by water-power—some kind of new machine by which the fall of water through a pipe not much larger than your finger raises the elevator and people on it. Now if—there—should—be"—

"I know what you are going to say, Sammy," interrupted the Doctor, as he saw the boy hesitating as if he hardly knew how to express his last device. "Your idea would be to have





reservoirs for water, capable of holding several thousand gallons, in the tops of the buildings, and other just such tanks in the cellars. And you would have the exercises of the men and women, in the gymnasiums and lifting-cures, so arranged as to concentrate power on force-pumps, which would raise the water from the lower to the upper tanks, so that the upper ones might supply water-power at all times during the day, if well filled by the gymnasts at the morning and evening hours, devoted to exercise; and you would have the lower tanks, to save, and supply, over and over again, the same water, so as not to be wasteful of it in the city, which finds it difficult to bring in enough water, from the country lakes, to supply the wants of the inhabitants. Well, perhaps this is practicable. It is, to say the least, a humane, philosophical and economical idea, to use the strength which is expended in gymnasiums and lifting-cures, in supplying motor-





power for poor women with sewing machines and indigent artisans with turning lathes.

"It may be," continued the Doctor, "that whether you have or not hit upon just the right plan for saving and using all this power, the suggestion you have made may, in the progressive future, lead to some splendid results. Those whose avocations only exercise the mental powers, ought to devote at least two hours each day to physical exercise. As much as this is needed for the preservation of health. Five persons, in taking such exercise, would, together, put forth as much physical effort as one man would in working all day on a farm, or in sawing or splitting wood. One hundred persons, devoting each two hours per day in physical exercise for health, would expend the force necessary for the performance of one day's labor of twenty farm-hands."

The Doctor then went on to say that "at the gymnasium of the Young Men's Christian Asso-





ciation in this city there is an average attendance every week-day night of fifty or sixty young men." "Supposing," said he, "each one is not engaged for more than one hour in active exercise, there is, nevertheless, enough muscular power expended here, in one night, to perform the muscular labor of ten men for ten hours."

Continuing his calculations, the Doctor further remarked—"It is, indeed, perhaps safe to say, that the amount of power expended in the city of New York alone for exercise, in all the gymnasiums, lifting and movement cures, and in the private rooms of young men and women who every morning exercise their arms and shoulders with dumb-bells, is equal to that expended by nearly or quite fifty thousand laborers working ten hours per day! If you add to these astounding figures the amount of exercise which *ought* to be taken by the citizens of New York in giving proper development to unused muscles, you would doubtless obtain what





would be equal to the strength expended by one hundred and fifty thousand laborers per day; and surely this power, if economically utilized, would run all the sewing and knitting machines of the working women of New York, and turn the lathes of not a few of the worthy artisans who, through the hindrance of sickness or other personal misfortune, can hardly afford to pay for steam power.

"I think, Sammy," concluded the Doctor, "that your little brain has given birth to a big idea, even though it may never be developed and made serviceable; for it does seem as if gymnasiums, lifting and movement cures, established in convenient localities, affording places of exercise for those engaged in sedentary occupations, joined to work-rooms, with free motor-power for those who can hardly afford to pay for it, would be a double blessing. They would call into muscular exercise many benevolent people who greatly need, but do not now take





it for the want of a sufficient incentive. In other words, they have failed to give sufficient attention to what is necessary for physical health, or to value exercise for simply what it yields to them. If the working of their unused arms could in any way contribute to the comfort and profit of the industrious poor, generous men might go from their offices and counting-rooms, and kind-hearted women from their chambers and drawing-rooms for an hour each day, and while swelling their muscles with material and strength, they would be swelling the purses of the worthy people who are now working treadles with their feet all day long, greatly to their injury, because they not only exceed the limit of healthful exercise, but greatly overwork a few muscles at the expense of disuse and weakening of others. Each of the workers, too, would be benefited by going from the work-room to the gymnastic play-room: and giving to such muscles, as are not





used in their labors, their fair proportion of exercise, and, by preserving the uniformity of their muscular development, contribute their mite of motor-power to the use of their fellow-workers. Splendid thought, Sammy! a beautiful device, my boy!" exclaimed the Doctor, as he was leaving the room—"a happy balancing of play and work—of unused and overworked muscles!"—and, saying to himself as he descended the stairs—"my little black boy is not only a promising anatomist, but a philosopher, economist and philanthropist—a Ben Franklin with jet enamel and ivory trimmings;" and a smile crept over the facial muscles of the Doctor as he thus soliloquized.

At breakfast that morning a pretty lively discussion took place as to whether that monkey was really Sponsie. Mrs. Hubbs thought it altogether too bad if Sammy was denying himself sleep and paying such devoted attention to somebody's else monkey. Sammy, who





was waiting on the table, asked if he might speak, and, on being given permission, said that he "should not feel at all sorry that he did so much for the poor little stranger,



LAMMY, THE WAITER-BOY (NOT THE AUTOCRAT) AT THE BREAK-FAST TABLE.

if it did turn out to be a counterfeit Sponsie. Some body" he said, "may be taking just such care of my poor little pet somewhere, if this is not he, and I will do the best I





can to save the little sufferer," and as he said this he wiped away the tears that filled his eyes before any of the family noticed them. The Doctor thought that the sick monkey looked very much as Sponsie would if reduced as much in flesh and strength. He said the little invalid had consumption of the lungs, and that it did not seem probable that in the brief space of forty or fifty hours Sponsie could be reduced to such an emaciated condition. "Why," added he, "I should give it as my opinion that this monkey had been sick for fully one year."

Sammy was allowed to speak again, and he said that after Sponsie made him so unhappy by jumping through the kite, he could not get him to jump through the hoop again, and that whenever he held it up before him, Sponsie would turn his head to one side as if ashamed. "Last night," he continued, "I thought I would show the hoop to this monkey, and he did the





same way, only not so much, because he was so weak."

"It is not impossible," responded the Doctor, "that it is Sponsie. When we consider that fright has in some instances changed a man's hair to white in a single night, it seems quite within the limits of possibilities that fright and exposure together might make just such a weakling, as we have here, of Sponsie. No one knows how high the poor fellow went up. The air becomes one degree colder every three hundred and fifty-two feet we ascend, and if he went up high enough to encounter winter temperature, he might have nearly frozen. It may be," said the Doctor, with a nod of the head, "that Sammy is taking care of the last sad remains of our late fat and mischievous Sponsie."

Breakfast was finished, leaving the question unsettled; the day passed, as the poor sick monkey presented now and then an encouraging, and in turn a discouraging, symptom, and still





no one could say positively that the little sufferer was or was not Sponsie. Even at the end of the week, Sammy could not tell for a certainty if he was administering to the comforts of his former companion, nor could the Doctor determine if the strange weakling would recover.

I must, indeed, close this first volume, leaving my little readers in a cloud of mystery regarding the whole matter. As you close these two pretty covers, and, very likely, as you close your eyelids to-night, you will lay down the book and then your tired bodies wondering, as Sammy did, night after night, whether this poor, sick, wasted monkey is Sponsie or some other fellow.

In perusing this story, so far, you have pretty nearly kept up with Sammy in his anatomical studies. You must know almost or quite as much as he does. You certainly must know more than some little boys and girls do of those



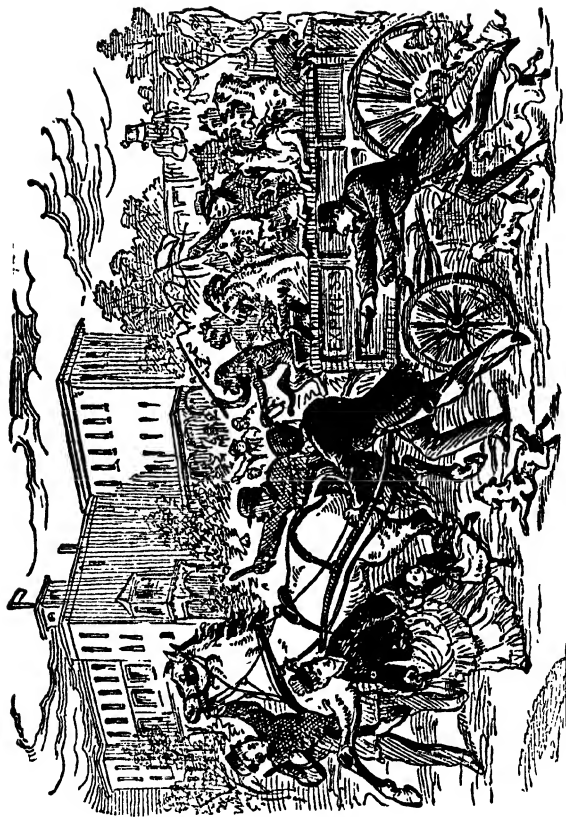


hard parts of the body, called the bones and cartilages, which give shape to the outer body and protection to the inner parts. You know, too, how you move your arms and legs—how you twist your bodies about, and how you turn your heads when looking after each other, for you have followed Sammy in his study of the muscles. There is much more that you may learn of them to your advantage, and you will doubtless do so when you get older. But if you can now keep up with Sammy, fortunate as he is in having the help of a kind employer who is a physician, you will do pretty well. So good-by for this time.





PART SECOND.



SPONSIE STOPPED BY THE POLICE.—[See page 217.]



CHAPTER I.

THE STUDENT TUBBS.



UR first volume opened with a chapter about "The Boy Tubbs." It is appropriate that this volume should open with a few remarks about the Student Tubbs. If my young reader of ten or twelve years lives to the ripe age of seventy, and properly improves his

time, he will be able to look back upon two or three and possibly four different persons as having lived in himself. If this is stating it a little too extravagantly, then we will say two, three or four different *characters*.

Sammy has already thrown off one character.





He came to the house of Doctor Hubbs a poor little ignorant colored boy. The Doctor taught him anatomy, and Mrs. Hubbs instructed him in grammar and spelling; and, with that aptness to learn which is often noticeable in colored children, he has reached in little over a year a degree of improvement, and has acquired a disposition to still further add to his stock of knowledge, which justly entitles him to the name of the Student Tubbs.

Did you ever see a portrait-painter copy on canvas the image of the human face? When he first sketches the general outline of the features it is almost as expressionless as the face of a china doll. Day after day the subject sits before him, until almost anybody would recognize the picture as a likeness of his friend, the sitter. But still the artist is not satisfied. He keeps touching up the picture here and there while you, with your inartistic eye, cannot see that anything need be done; and yet, if a copy of the incomplete picture could





be kept, so as to be compared with the one which the painter considers finished and upon which he has expended so much time and patience, you would at once be struck with the contrast, and see



THE PORTRAIT-PAINTER.

that he did not bend over his work a moment too long.

It is very much after this manner that every individual bent upon self-improvement softens, beautifies and gives intelligent expression to the





lines of his own face. The healthy baby is born with bright sparkling eyes, and a glow of vivacity from the living material of which his little body is composed. He simply looks, however, like a little happy animal gifted with human possibilities. As he grows a few months older, and learns something by observation, there gleams from his countenance something of an expression of intelligence. In a few years he has what you may, perhaps, call an intelligent face. But if you will take his photograph and place the child in the hands of a good teacher, new lines of intelligence, if not of beauty—generally both—will gradually take possession of every feature, so that the photograph no longer presents a faithful likeness of the boy.

Reaching manhood, you might say of this young man as you did of the artist's work when he had about half completed the portrait—this is a good picture. But the Great Artist has not yet finished this face, if the sitter—or learner—will but have patience. If the young man is resolved on self-





improvement, still further will this picture of the "human face divine" take on new lines of intellectual growth, nor will he have put on all the finishing touches, which would otherwise be possible, before the hand of Death overturns the easel, and leaves the brushes of science, art and religion in the places where they had dropped beside him.

Go into a public conveyance, in a large city, where humanity is met in all its different forms, and you will see faces in all stages of development. Enter a city horse-car. Over there in a corner is a young woman who possesses the elements of intelligence and personal beauty. You say, perhaps carelessly, she is pretty. But she speaks to the one beside her, and at once you observe an expression of ignorance, if not coarseness. It is not her language which betrays her incompleteness, but a certain automatic movement of the muscles of the lips, and a lack of intellectual flash in her mild and otherwise pretty eye. There, too, nearly opposite your own seat, is a good-looking

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man He has a large, well-filled forehead, finely-formed features, and a good-natured eye. He has, indeed, the dim facial outlines of an intellectual and really good man. But he has left the studio of the Great Artist too soon. The fine marks indicative of intellectual culture, and the sweet, delicate lines which imprint upon the features the appearance of fine moral sensibility, have been omitted, and this, too, is an incomplete picture. He is perhaps absorbed in the business of life, and imagines he has no time for the development of his manhood. He is doubtless a kind father, however, and not only takes good care of his own stomach, but also of the little stomachs at home. Then, all around you, there are all sorts of variations from the above-pencilled pictures. Over there is a face which has no more expression than if it had been run in a candy mould. That one next to it reminds you a little of a puppy's face. There is one which might more readily be mistaken for Sponsie's than any





one of those presented at the monkey-show described in the first volume. Here is another, in which there appears to be such an antagonism among the features that they all turn from each other as if in disgust. The nose turns up with an expression of disdain, the lower lip turns down at its corners as if trying to escape, while the centre rises up, as if to seek favor of the dissatisfied feature which projects so prominently above it. The ears grow away from each other on either side of the head ; the hair feels above as well as rises above the scalp which gives it life, and looks as if it would rudely resist the mildest influence of a comb. The expression of the eye looks as the cat's back feels when you stroke it backward. The glaring gaze is all full of barbs, and when he turns it toward you, you instinctively look away.

Now, the people here described have been disfiguring their pictures from their babyhood up, by using the wrong brushes. Their mothers doubtless thought them the prettiest babies that





were ever born, and it is not unlikely that they did look pretty well, but they have not only failed to use what was within their reach for beautifying their facial expression, but they have daubed their countenances with the brushes of ignorance, selfishness and conceit, so that, instead of improving the faces of babyhood, which their mothers delighted to kiss, they have turned them into caricatures and burlesques.

"What about the monkey? we want to know how he is," I imagine some of my uninterested young readers are clamorously inquiring.

Well, I shall not yet tell you. I have you here now, and intend to hold you, until I shall have told you what I want to. I am quite well aware that you have gathered around, expecting to hear whether the sick monkey was really Sponsie, and whether the poor little fellow died or recovered. But you will have to wait. You may say you do not understand all this I am telling you, about the artist, his brushes and easel, and about the queer







folks we meet in the cars ; but I tell you that you may understand it if you will, and if you do not all want to grow up with crockery and putty faces, or those which remind you of the uneducated brutes, you must have patience and listen sometimes to things which do not immediately interest you, and study out the meaning of things you do not understand. So, do not go away, and by and by I will resume the story which seems to interest you.

It is my desire, from time to time, to call your attention to Sammy's growth ; not simply in body but in mind. It is my wish that you should imitate the patient industry of the boy, and not ape the roguishness of the monkey. The monkey can be nothing but a monkey, if he lives till all of his hairs, from the end of his nose to the tip of his tail, turn white ; but I shall show you that a boy, whether enveloped in a white or black skin, has within him the material which, if rightly used, will enable him to progress in goodness and intelli-





gence, and, as a usual result, in success from the cradle of earth to a seat in heaven.

Sammy, as before observed, has been gradually changing his character, and his countenance has undergone a corresponding change. He has seized the brush of knowledge and the easel of opportunity, which were thrown at his feet when he entered the service of his employer, and has been touching up his character here and there whenever leisure permitted, till Doctor Hubbs was compelled to exclaim in his enthusiasm, "My boy is not only an anatomist, but a philosopher, economist and philanthropist." This was truly a great compliment for a little boy to receive from an educated man. But Sammy studied hard, thought much, and cultivated the kindlier feelings of humanity. He consequently gathered knowledge and goodness, just as the ball of snow you roll in winter increases in size and weight.

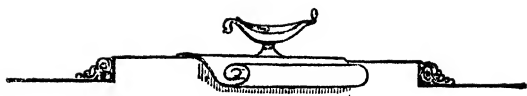
While pursuing your play, you can every day add a little to your stock of knowledge. Season





your pastimes with a little study, and you will find that knowledge, thought and opinion will gather in your brain, as steadily as the falling snow-flakes gather in the boughs of the trees. It will very likely be a surprise to yourself, when you compare your attainments of one year with those of two, and those of two with those of four, and so on. By all means play a great deal and develop your muscles, but when you are giving your voluntary muscles rest, work your teachers, and turn the leaves of the family library, so that the thoughts of an active and growing mind may mould the facial muscles in æsthetic lines of goodness and intelligence. While reading these volumes keep up with Sammy. Do not let a little black boy do better than you. Be sure, when you have finished reading these pages, that you know as much as he does of the human system.





CHAPTER II.

APRIL-FOOL'S-DAY—SAMMY A VICTIM—SAMMY'S RETALIATION—THE TALK ABOUT THE BLOOD—SAMMY'S CURIOUS THOUGHTS, AND HIS STORY OF THE STEAMBOAT—THE RESULT OF SAMMY'S TRICK ON BRIDGET—THE EXPLANATION—THE SICK MONKEY AT THE BOTTOM OF THE WHOLE TROUBLE.



IT is April-Fool's-day—a day which is observed in every country in Europe, and, to a very considerable extent, on this continent, by boys and girls, and by the jollier ones among older people, in playing all kinds of antics upon each other. The peculiar customs of this

day have been supposed by some writers to have originated among the Hindoos, but “the older





opinion," according to the American Cyclopædia, "is, that they came from a celebration of Christ being sent about to and fro among Herod, Pilate, and Caiphus." Where the English language is spoken, as you all know, the one who is the victim of a laughable joke is dubbed an "April Fool;" the French call him a name which, in our language, means a silly fish, because he has been easily caught; the bonnie Scotsman calls him a gowk, which, in his vernacular, means a cuckoo. It is generally a pretty lively day among the young folks.

Sammy made his appearance in the breakfast-room, with one of the servant's nightcaps pinned upon the centre of his back, having marked upon it with something black, a crude—very crude—outline of a human face; then he had streamers of soiled ribbon attached to his roundabout, taken evidently from the toilet of either Bridget or Biddy.

Presuming it to be a trick of the girls, the Doctor and Mrs. Hubbs only threw humorous glances





at each other, as they beheld the odd-looking back of the boy. "You may go to the kitchen and bring us a plate of brown bread," said Mrs. Hubb to Sammy. This was done more to please the servants than because the bread was wanted.

Immediately there was a roar of laughter, and an outburst of "rich Irish brogue" in the kitchen. "An' shure an there's me own nightcap!" exclaimed one. "An' what are ye doin' wid me bonnet-strings?" loudly asked the other, while Sammy was pulled and hauled about as if he had been a little thief, instead of the innocent victim of an April-fool joke. With his clothes pretty nearly pulled from him, he escaped to the breakfast-room, in a humor which it would be difficult to define. If they had pinned these things to his back, he did not quite see why he should be pulled to pieces for it. It was, in his estimation, enough to be made the unwilling target of their jests, without being nearly skinned alive for what he was not at all responsible.





The Doctor, seeing that Sammy was burning with indignation behind the forced smile which played over his confused features, helped him to adjust his coat upon his shoulders, and replaced his



SAMMY IN HOT WATER.

necktie, which had fallen inside his vest, remarking, "Never mind, Sammy; you can get even with them before the day is gone."

"I bet I will," responded Sammy, as he shook his head, and turned his eyes, flashing like fire,





towards the door through which he had made his escape. "Biddy didn't do much but laugh; but Bridget'll catch it, 'if the court knows herself, and she thinks she does,'" continued the boy, feeling quite elated at recalling and using a phrase which was just going the rounds.

At about eleven o'clock, Sammy entered the kitchen in a bustling way, with his coat buttoned up and his hat on, as if he had but just come in. "Here, Bridget," said the boy, "is something which the Doctor wants you to cook for his dinner." (Mrs. Hubbs had gone out for the day.)

"Shure an' what aise it?" inquired the girl, approaching it with her nose, for it was a queer-looking black strip of something quite resembling rubber.

"I cannot tell you the name of it," replied Sammy. "It is mannigroodi or mannirooni, or some such name. The Doctor spoke of it as an Italian dish, and said that you should fry it in butter, and season it with salt and pepper, while frying it."





"Faith an' I don't know what it aise at all at, all," muttered the girl to herself, as she carefully placed it upon a plate in the refrigerator. And for the next two hours her mind was in a great state of perplexity as to just how it should be cooked; for Bridget was a girl who assumed to know her own business, and would rather endure the charge of spoiling it by carelessness, than expose her ignorance by making any further inquiry as to how it should be prepared for the table.

As Sammy ascended the stairs, he met the Doctor, who had just come in.

"Been out, Sammy?" inquired the Doctor, with surprise.

"Oh no," said Sammy, with an air of assumed composure. "I buttoned up my coat and put on my hat as I went down into the kitchen just now; but I have not been out during your absence."

"Well," asked the Doctor, "have you made any progress with your studies for the past ten days? I have a little time to spare now, and if you





have anything to ask or tell me, I will devote myself to you."

Nothing could exceed the readiness of our little anatomist to give up all thought of play (or even work, for that matter) at any time, to have a chat with his preceptor; so, with a quick step, he placed two chairs in good position for the Doctor and himself. While doing so, he said, "In thinking about exercise for making the muscles grow, the question came to my mind as to how exercise could make them larger and stronger; and by looking over that book," pointing to a work on physiology lying open on the table, "I found that it is by attracting the rich, healthy blood to them. The more you use your muscles, the more the blood goes into them, and leaves its strength-giving properties. I guess I've got it, haven't I?" said Sammy, looking up inquiringly.

"Yes, Sammy, that is right," promptly responded the Doctor. "And we may as well talk about the blood this morning as about anything





else. There is something very wonderful in that crimson fluid. Do you know of what the blood seems to be composed, my boy?"

"Y-e-s, s-i-r," drawled out Sammy, rather confusedly; "corrupples and a fluid of some kind—" here Sammy stopped to think—"I cannot remember what it is."

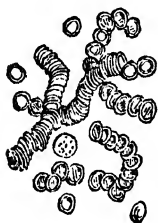
"That reply is worthy of Dr. Winkles' Louis Napoleon. When you find yourself so poorly prepared as this to answer a question, you may better say you don't know," continued the Doctor to Sammy, who colored up as much as a little boy of his complexion could.

"You are quite excusable," resumed the good-natured man, as he noticed the boy's discomfiture at not being able to reply. "Some of our greatest physiologists differ as to its constituents. But what you wanted to say was—that the blood is composed mostly of solid matters called corpuscles, and an alkaline fluid called the plasma, consisting of water, salts, albumen, fibrin, and so





forth, in a liquid state. The corpuscles are so small that the eye needs the aid of the microscope to see them. As seen under a good microscope, they resemble very nearly thick pieces of money with rounded edges." The Doctor here took his pencil from his pocket and marked out their form as seen under a powerful lens. I will give them here just as the Doctor sketched them. "These



BLOOD CORPUSCLES.

corpuscles are of two kinds, the red and the white; the former greatly predominating. You need not undertake just now to learn what various physiologists believe as to the constituents of the blood, or to

acquire a knowledge of the technical names which they give to each of them. But one thing I wish to have you remember, and it is this: The blood is, in plain language, fluid bone, fluid cartilage, fluid muscle, fluid nerve, and fluid everything which goes to build up the body.





I might almost say that your blood is Sammy in a liquid form. That which is in your monkey's blood now, will, if he lives, in a very few days become bone, muscle, hair, and so forth. In other words, that which is now circulating through his body in the shape of blood, will, in a little while, become a part of the body itself, while the older particles of matter of which his body is composed will be thrown off in various ways."

This remark put Sammy into a still more thoughtful mood than he had ever before exhibited. As the Doctor concluded, there was a pause for several minutes, during which you could have heard a pin drop. Finally, raising his head, the boy said, "Then I am dying every day, and being born every day, am I?"

The Doctor was struck with the logical simplicity of the boy's question, and responded: "Yes, practically so. Particles of matter are all the time dying in your body, and fresh ones are as constantly taking their places, when you are in a





condition of health. Some physiologists say that we change our bodies completely as often as once in seven years. I think that some active ones change theirs much oftener, while more sluggish people do not change theirs so often."

"Then," said Sammy, with a look of surprise, "the body I was born with has been buried, and in smaller pieces and more places than if it had been cut up by the physicians!"

"You are a great fellow, Sammy!" exclaimed the Doctor, with an outburst of humor, "to take a purely literal view of matters. But, after all, you are right—literally correct. The body with which you were born has, in point of fact, died in instalments, and has been buried at various times and in various places. The old body, while undergoing the process of dissolution, produced the blood of which your new body has been rebuilt. If you live, your present body must undergo a similar change until every particle of bone, muscle and flesh which is in you to-





day, will pass away, giving place to new matter altogether."

"That makes me think," said Sammy, "of the steamboat I saw down at the pier the other day. A man standing on the dock said, that that steamboat was so old and had undergone so many repairs that he did not believe there was a piece of timber in her, as long as his arm, that was put into her when she was built. But," concluded Sammy, laughingly, "I did not suppose anybody could say such a thing of me."

"Whew!" exclaimed the Doctor before the boy had fully finished his remark, pressing his handkerchief firmly against his nose; "horrible of horrors! where does that smell come from?"

Both jumped up at the same instant, and Sammy running ahead of the Doctor to the kitchen, screamed at the top of his voice to Bridget: April-fool! April-fool!! April-fool!!!

Just before the boy entered, Bridget was engaged in pressing down a tin cover closely over





the spider containing the "Italian dish," which was filling the whole house with the most offensive smoke that had ever come from the top of the range, not dreaming, however, even at this moment but that she was cooking something that the Doctor had ordered.

"Bad cess to ye! ye little black schamer!" bawled the girl, seizing the dirty, smoking strip of black rubber with her fork and pursuing the boy. "It's a purty job ye'se made uv me nice clane spider;" and as she uttered the last word the stuff went whirling at Sammy's head, but, he dodging, it was just in time to hit the Doctor across the chin as he entered the hall.

* Things now took a more serious turn. It was not quite compatible with the best of good-nature to have such a greasy piéce of hot, smoking, dripping rubber hit one in the face.

"Order!" loudly shouted the Doctor. "Stop right where you are, Bridget—and don't you stir a step, Sammy! What does all this hubbub mean?"





SAMMY'S APRIL-FOOL JOKE.



Sammy and the girl both spoke at once, but as Bridget could make herself heard far above the boy's voice the words which greeted the Doctor's ear were—

“Bad cess to the boy ! in truth it is yer own little black Faynian what's made the whole muss ! Oh daer, oh daer, I wish I had stayed in the ould counthry intirely. An' it's meself that'll be afther goin' immadiately !” And here the poor girl sank down upon a box, overcome with tears and anger.

Sammy's lip quivered as he spoke, for he had no idea that his joke was to have such a disastrous ending. He reminded the Doctor of the trick the girls played on him in the morning, and of his promise to get even with them.

Bridget interrupted him by saying with great emphasis, “An' shure an' I played no thrick upon ye at all at all ; ye played one on us poor sarvints, so ye did, displayin' our nightcaps and thrinkets, oh, ye bould broth of a boy !”





When the Doctor came to understand the whole affair, he washed his face good-naturedly and changed his clothes, which were bespattered with the hot dripping butter in which Bridget had tried to fry Sammy's April joke. While doing so he took pains to quiet Sammy's excitement by showing him that the skin on his chin was only reddened a little—not burned—and telling him that the joke was in itself a most laughable one. But he expressed his regrets that it should have ended so unpleasantly. Not only was the Doctor bespattered and Bridget's "clane spider" soiled, but the house was filled from kitchen to attic with the disagreeable smoke of melting rubber.

In attempting to soothe Bridget, the Doctor was surprised to find that the girls had not played the joke on Sammy for which the boy had retaliated. Both of them solemnly denied it, and their manner was such that the Doctor felt himself compelled to believe them.

Who, then, had pinned the nightcap and rib-





bons on Sammy's roundabout? You will laugh when I tell you. It was the sick monkey ; he was at the bottom of all this mischief. He had, from the window, seen the boys doing these things in the street, and so he fixed off Sammy with just what he could lay his paws on first. The servant's room being close by, the mischievous little fellow took the cap and ribbons from the bureau, and decked out Sammy as a first-class April-fool ! He displayed, too, no little capacity as an artist in making the outline of a face on the night-cap, although it could by no means be said to be cleverly done. That it was done at all was the wonder.

"Then the monkey must be better," you will all say.

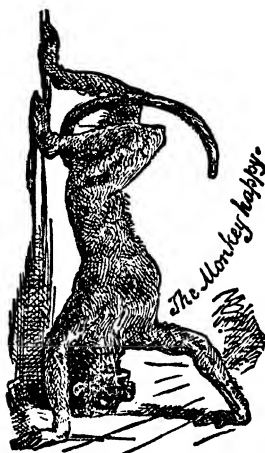
Yes, the monkey is better ; but he coughs badly yet, and the Doctor thinks that one of his lungs is badly diseased. Nevertheless it is thought he may yet get well, as cases have occurred in which people losing one lung have lived





and seemed to enjoy pretty good health with the one remaining.

This trick was the most characteristic of Sponsie that the monkey had yet perpetrated, and that night the family retired, quite united in the conclusion that the little fellow upon which Sammy had expended such watchful care was none other than the veritable Sponsie himself.





CHAPTER III.

BRIDGET'S OUTBURST OF TEMPER—HER DISCHARGE—SAMMY MAGNANIMOUSLY OFFERS TO LEAVE IN HER STEAD—THE RECONCILIATION—FURTHER CONVERSATION ABOUT THE BLOOD—SAMMY THINKS HE HAS CORNERED THE DOCTOR—SAMMY DEFEATED—THE MONKEY MAKES A BREAKFAST OF SAMMY'S TREASURES.



So one feels the dampness from a rain-cloud overhanging the sky, so all sensitive people feel a kind of mental unrest when a cloud of bad temper overhangs the domestic hearth. As Doctor and Mrs. Hubbs descended the stairs for the breakfast-room the morn-

ing following the exciting episode of April-fool's-

2*





day, the former remarked that things were evidently going wrong in the kitchen, and that Bridget was still quite likely muttering the curses of St. Patrick upon the unfortunate head of Sammy. Both the Doctor and his wife greatly regretted the whole affair, because Sammy had been quite as much the pet of the people below-stairs as of those who frequented the office and parlor.

When the boy brought in the dishes which had been prepared for the morning meal, his face looked demure, if not sullen, and the meats and vegetables had the appearance of having been cooked by some novice in the culinary art. On inquiry, it was found that Biddy, instead of Bridget, had superintended the preparation of the breakfast. Bridget had spent her time in hurling invectives at poor Sammy, while the boy and the chamber-girl had together managed to get up what would pass for a pretty fair meal on a moving or house-cleaning day.

Mrs. Hubbs told Sammy not to mind it—that if





either had to leave, Bridget should—and that his April-fool joke, although a hard one, would have been well merited by the girls if it had been true, as it was supposed, that they had pinned the nightcap and ribbons on his roundabout.

After breakfast, Mrs. Hubbs thought she would pay the lady of the kitchen a visit. On entering, Bridget was found seated with her chin supported by her hand, and her elbow by a pine-top table. Her hair had not been combed, and her face looked as sullen as if she had spent the night under a lock and key in a cell at a police-station. Her eyes reminded one of the ends of a bunch of lighted fire-crackers on a Fourth of July morning, and you could almost imagine that her mouth was crammed full of them, all ready to go off.

Mrs. Hubbs timidly retreated to the breakfast-room, afraid to say a word to the enraged girl, and asked the Doctor to go in and speak to her; then, if she was disposed to persist in her anger, he might better discharge her. Sammy felt terribly,





for he could not bear the idea of their turning off Bridget because of a disturbance occasioned by his own act. Hearing the violent language of the girl to the Doctor, who approached her pleasantly, and finally the command from him that she should pack up her clothes and leave right away, Sammy presented himself as a most humble intercessor, urging the Doctor that, as he was the cause of the trouble, it was proper that he should go, and that Bridget should stay.

The earnestness of the bright but sorrowful countenance of the black boy, and his beseeching attitude, acted like a charm upon the turbulent feelings of the enraged girl, and, bursting into tears, and burying her face in her two hands, she exclaimed—

“ Indade, an’ Sammy aise a good boy to ba sure ! In faith an’ he aise ; an’ it is mesilf that’s to blame altogether ! I’ll go mesilf—in troth an’ I will, as I dis-sarve to,” said the girl, convulsively, as she wiped her face with her apron and arose from her chair.





"No," said the Doctor ; "if you can overlook Sammy's joke, and feel the same towards him that you have heretofore, and show no more bad temper, you are entirely welcome to stay."

"Indade an' I kin, an' more's the shame to me for gethin' so mad wid him."

Sammy felt delighted enough to jump out of his skin, and, approaching the girl, said : " Here's my hand, Bridget, and, if you will forgive me, we will never have trouble again."

You have seen the rays of the sun stealing down between the dispersing clouds during an April shower, making the face of Mother Earth radiant with prismatic light, and each falling rain-drop as brilliant as a gem. Just so were the hard features of Bridget illuminated by a sudden gush of good-humor which gleamed from her flashing black eyes, causing her tears to glisten like sunlit rain-drops. Extending one hand to the boy, and brushing away the falling tears with the other, she said, " God bless yer, Sammy ; 'pon my sowl





yer full of the blood of a nobleman, so ye are."

When the whole matter was fully talked over, and each had had his and her say—for Sammy's particular friend Biddy was on hand with her counsel—the Doctor and Sammy ascended the stairs with light steps to report the result to Mrs. Hubbs. The opportunity was not lost to remind Sammy of the good effect of kind words, and proper apologies, too, when found in the wrong. The whole trouble originated in the roguishness of the invalid monkey, and Sammy's retaliation was quite too severe, considering the fact that the servants had really played no joke upon him. Bridget had a violent temper, which, it is but justice to her to say, she had thus far controlled remarkably well; and the family all felt disposed to overlook this outburst of rage, considering the aggravating circumstances under which it was aroused.

As the Doctor and the boy returned to the office-room, the former expressed regret that so





THE RECONCILIATION.



much time had been lost in clearing up the storm occasioned by the April-fool jest ; but he said he would spare a few moments for another little chat about the blood.

“ I suppose,” remarked the Doctor, “ that you have not much of an idea as to how the bones, cartilages, muscles and flesh are constantly being rebuilt by the blood.”

“ I think I have,” replied Sammy ; but remembering his imperfect description of the blood the day before, he said, “ I hardly think I can quite tell you, and if you will be so kind as to tell me, you will at the same time teach me lots that I don't know.”

“ Well, Sammy, suppose I should tell you that you are a sponge,” commenced the Doctor, “ with a countless number of tubes all through you—one set of tubes emptying a rich nutritive fluid into your spongy body, and another set of tubes taking up the fluid after it had given off its nutritive substances, carrying it back to a place where it could become





again loaded with nutrition for another round trip through your body—what would you say ? ”

“ I should say that you knew all about it,” responded the boy ; although he didn’t quite relish the idea of being called a sponge, for among the boys this name was given to lazy chaps, who lived on industrious people, instead of taking care of themselves. At the end of the pause that this reflection occasioned, he recovered himself and, looking at the Doctor, said, “ Yes, sir, call me a sponge if you want to, but ”—in a low tone of voice—“ I don’t think I am one.”

The Doctor laughed when he instinctively perceived how the boy construed the meaning of the word, and proceeded to explain : “ I do not mean,” he said, “ a sponge in the vulgar sense of the term, neither do I mean a sponge in a literal sense. What I desire to convey to your mind is the fact that your flesh is, so to speak, spongy. You have noticed the little cells in a piece of sponge. Well, your flesh is full of just such cells, though not so





large, and these cells or vessels in the human flesh are called by anatomists the capillaries.

The fresh, rich blood, filled with material for rebuilding your body, is poured into the capillaries through tubes called the arteries, the largest and main trunk of which is named the aorta. The capillaries being filled with blood is what makes your flesh so juicy. You cannot pierce the skin with the point of a needle without causing the blood to ooze out. The flesh is full of blood in constant motion. After the bones, cartilages,* muscles, nerves and other parts have taken up the material needed for their rebuilding, and given in exchange therefor the worn-out particles they are ready to throw off, another set of tubes, called the veins, having their little open mouths in every part of the capillary system, take up the poor blood and carry it to the lungs for renewal, and visit on the way the excretory vessels of the skin and mucous membrane, the kidneys, the liver and other eliminating organs. Enriched by the pure air it meets in the





lungs and the nutritious matter it receives from food undergoing digestion in the stomach, it is again ready to make a round trip through the system." At this point the Doctor arose, and taking a book on anatomy, opened to some pictures in which the blood-tubes were presented. I will copy them so that my young readers may see them. Please observe how numerous they are; the flesh is really full of these conductors.

"But," inquired Sammy, "what makes the blood go running around through the body so? Don't it ever stop?"

"It never stops moving in a healthy body," replied the Doctor, "nor can consciousness be long maintained if from any cause its circulation be arrested for any length of time. It is estimated that there are at all times from seventeen to twenty-eight pounds of blood in a person of average size, and this keeps going the rounds of the arteries and veins."

"What makes it go? I want to know," reiterated Sammy impatiently.





“Oh! yes, I must tell you that, my boy,” answered the Doctor, rather pleased with this exhibition of impatience on the part of his pupil, to learn a fact so important.

“The heart,” he continued, “is what might be called the business superintendent of all this strange work. I shall some time tell you more of this curiously constructed organ, but for the present it will be sufficient to say that it is made up of strong, active muscles, the contractions of which cause it to throw out blood with great force. If you were to take a hollow rubber ball, pierced by an aperture as large as the finger, and filled with water, it would be something like one of the cavities of the heart called the left auricle, filled with blood. Now compress the rubber ball successively in your hand with some force, and the water expelled therefrom will issue in violent jets, just as the blood is expelled by the muscular contractions of the auricles of the heart; the left auricle throws it into the left ventricle, and this by its contractions forces it into the aorta,

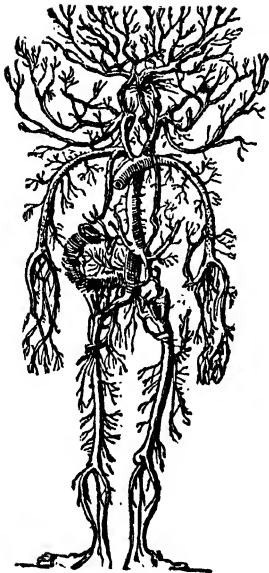




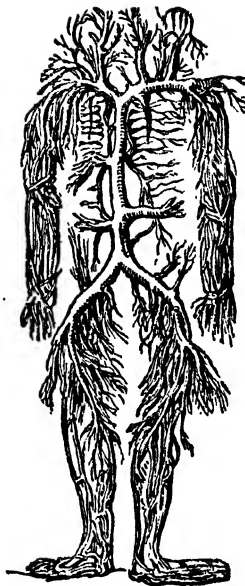
and so it goes moving on through all the arteries which are provided with muscles to contract upon them in such a way as to give the circulation of the blood fresh impulse. The arterial blood, reaching the capillaries, has barely time to unload its valuable cargo of building material for the various parts needing it, before it is urged on to the mouths of the veins by the pressure of that which is constantly incoming from the heart and arteries. The heart undergoes four thousand contractions per hour, and it is calculated that in the brief space of sixty minutes it passes not less than two hundred and fifty pounds of blood. According to the calculations of some physiologists, fully five hundred pounds of blood pass through in the time mentioned.

“I thought,” interrupted Sammy, “that you said that there were at most but twenty-eight pounds of blood in a man!” The boy’s eyes twinkled, for he felt convinced he had caught the Doctor in a weak position. He at once made up his mind that his preceptor had made as great a mistake as he





ARTERIAL TUBES.



VENOUS TUBES.



did, when he called the corpuscles of the blood corrupples.

The Doctor, seeing the boy's elation at getting him into a supposed corner, humored him a



THE DOCTOR CORNERED BY SAMMY.

moment by casting his eyes down and knitting his brows with an assumed look of confusion ; then raising his eyes again, he asked, " Did I, Sammy ? "

" Why yes, you did, Doctor Hubbs," replied the boy, wriggling and twisting in his chair with half-





suppressed laughter. His black skin was radiant with mirth, and it was with difficulty that he could avoid giving vent to a perfect roar of merriment.

It is perhaps excusable in little folks that they feel so ready to burst with happy emotion when they think they have caught their teachers in a tight place, it so often happens that they are ridiculed for their own blunders.

"Well, now let us see who is right in this matter," resumed the Doctor gravely, after Sammy's merriment had somewhat subsided. "I said that there were at most twenty-eight pounds of blood in the human body. Now, it would be only necessary for this amount to pass through the heart nine times in an hour to make the total two hundred and fifty pounds, or eighteen times to make the grand total five hundred pounds, as some physiologists hold that all the blood in the body passes through the heart as many as eighteen times per hour."

"Oh ho!" exclaimed Sammy, with a look of blank astonishment, "that's the how of it, is it?"





"That is how it is," replied the Doctor, "you see you did not catch me that time. You will have to try again. I suspect you will after a few years become so much smarter than your tutor, that I shall be sitting at your feet for instruction. But you must wait until your whiskers grow," he added good-naturedly.

The crimson flushed Sammy's dusky skin, as the Doctor said this; and he barely looked up with an abashed smile, without trying to reply. He felt certain in his own mind that the time would never come when he would be the teacher of anybody, much less the teacher of his distinguished employer. He discovered, too, that the more he learned of the wonderful mechanism of the human body, the more there seemed yet to learn. "But," whispered he to himself so that the Doctor only caught a word or two, "when I know as much about it as you do I shall be satisfied."

"It will not take you long to learn what I can teach you; or, indeed, to become familiar with the





teachings of the books," resumed the Doctor, guessing at the purport of the boy's soliloquy from the few words that reached his ear. "You are but a hoy yet, and when you look back upon your progress during the fifteen months you have been in my office, you can judge what advancement can be made in, say, as many years. You learn one thing to-day and another to-morrow, and if you will but acquire the knowledge of one new fact each day, you see that you will have an aggregate of three hundred and sixty-five facts at the end of one year ; seven hundred and thirty at the end of two years, and eighteen hundred and twenty-five at the end of five years."

As this suggestion unfolded itself in his mind, Sammy gathered himself up from the kind of shapeless position into which his body had fallen under a momentary feeling of utter discouragement.

Everybody, old as well as young, in pursuit of knowledge, feels at times appalled at the boundless fields of science which open before him. It





seems as if the acquirement of every new fact adds a new lens to the mental vision, until the mind is surrounded with telescopes through which it views the immensity of the universe above, and with microscopes through which are revealed the endlessness of life and organization in the minutest atoms of matter under the feet.

The cultivated mind, at the close of a day of earnest study, stands upon a charmed threshold from which it looks out upon the mysterious depths of space, through endless pathways lighted by the stars; and, when dazzled by the brighter light which breaks in the east, it turns within to revelations no less marvellous and sublime.

"There is," remarked the Doctor, after he had given the boy time to think of the rapidity with which facts multiply in the mind, "no pastime so entertaining to educated people as that devoted to the study of the sciences. The fields of science are their play-grounds. Those who never enter these, because they imagine they are hard to the





feet and straining to the head, die as the animals do, unconscious of nearly all enjoyments excepting those which proceed from sensuous pleasures. Boys and girls with no higher aspirations than the realization of the latter may better have been born monkeys."

At this Sammy was instantly reminded of his little invalid in the attic, who, in consequence of the affair in the kitchen, had been completely forgotten. It was now almost noon, and the little fellow had had no breakfast. The boy shot upstairs like a rocket, hardly stopping to tell the Doctor why, and the Doctor left the office to make professional calls. The monkey had found himself equal to the emergency. Sammy had just one really ornamental thing in his room. This was a vase filled with imitations of fruit made of sugar, and so colored as to look as if they were natural. There were rich bunches of grapes, nice long bananas, luscious-looking oranges, together with apples and pears, and ever so many other fruits.





This vase had been but recently presented to Sammy by a wealthy patient who was in the habit of visiting the Doctor. Among the nicked, cracked and broken mantel ornaments this had stood out like an artistic oil-painting in the window of a cheap picture-shop.

There sat the supposed Sponsie on the floor with this beautiful vase between his legs, and the end of his tail passed over it as if to keep all intruders out. The beautiful bunches of grapes and the long bananas had been eaten, and he was now, just as Sammy entered, working as hard as he could to take a bite out of a candy orange. The boy sprang for the vase, and the monkey, chattering wildly as if indignant at being disturbed, when peaceably taking his breakfast, jumped upon the mantel, from which position he pitched into Sammy about as vociferously as Bridget had done in the morning.

Thus our little material treasures perish—but the treasures of knowledge, never.





CHAPTER IV.

THE FAT LADY'S CALL—WHO IS SHE?—THE SURPRISE OF BOTH THE DOCTOR AND SAMMY—THE TALK ABOUT THE BALLOON ASCENSION, AND ITS EFFECTS UPON THE ÆRONAUTS—THE FANTASTICS—THE MONKEY JOINS THEM AND GETS ROUGHLY TREATED.



HE wistaria is draped with its graceful clusters of blue-purple, and the brown branches of the shrubs and trees are fringed and tipped with unfolding leaves of green; for it is a lovely day in May. The birds are flitting from limb to limb, chattering about it, and even the little black-backed bugs creep out cautiously from between the stones to steal a peep





at its glories, and to see if the charm of the hour may not in some degree modify the carnivorous propensities of the little feathered bandits who can pour forth enchanting melody from the same murderous beaks with which they mangle and swallow the tiny insects. But no ; life and death, singing and crying, comedy and tragedy, are all strangely mixed up on this planet of ours, which goes rollicking through space, just as if there was nothing the matter. It may be, the dark shadows of life are yet to be illuminated by the lamps of knowledge, and that by the time the human family learns well the humanizing lesson taught by the "golden-rule" in its treatment of each other, the lower orders of animal life may practise the homely but just motto of "live and let live."

The monkey is in Sammy's attic-room, indulging in his customary morning cough. The Doctor is in his library, and Sammy has gone out with a package.

"Shure an there's a big fat woman after saying





ye in the office," announced Biddy, at the Doctor's open door.

Descending quickly, the hand of the Doctor was grasped by some one who evidently knew him, if he did not quite recognize her.

"And can it be, you do not know me, Doctor?" inquired the lady with a look of surprise, lightened with a roguish laugh.

The laugh relieved the perplexity of the Doctor's mind, for he had heard that many a time before. "Is it possible," he asked, "that this is Mrs. Millstone? Why, how you have changed!"

Mrs. Millstone had been absent for over a year, and had, during this time, accompanied her husband on two short voyages. When she left she was a delicate-looking woman, weighing about ninety-five pounds. Improved by the remedies the Doctor had prescribed, and by the beneficial influence of change of scene and climate, she had reached a weight of nearly or quite two hundred pounds. She would not tell just what she did





weigh. Perhaps a two-hundred-pound weight would not have prevented the long arm of the scales from dancing upward, and ticking for an additional one.

Listen ! Sammy is scraping his feet at the door. Let us see if he will know the lady who made him the present of his pet, Sponsie.

The boy enters the hall, carelessly looks in at the door of the office, and passes by. "Come in here, Sammy," called out the Doctor.

Mrs. Millstone gave her countenance a kind of fixed expression, much as one does when sitting for a photograph, instead of lighting it with her characteristic smile, and of course the boy did not recognize her. Two hundred pounds or more of fixed fat, taking in the objects about her through two dull eyes, which looked as if bound to tell no tales—surely this was no fair test of Sammy's ability to recognize a friend who had been so long absent.

He walked awkwardly around her with his ner-





vous glances interlocked with her expressionless ones, and finally sat down in an uneasy attitude.

"I cannot say as I do," responded Sammy.
"You ain't the one I talked with at Barnum's, are



SAMMY'S QUANDARY.

you?" innocently continued the boy with an earnest, inquiring look at the lady.

This was too much for both the Doctor and his former patient. Both exploded with laughter at the insinuation of Sammy that she might be the fat





woman on exhibition at the museum, with whom he had a chat one day.

As in the Doctor's case, however, her laugh betrayed her, and Sammy exclaimed, "Why! Mrs. Millstone! Is it you?"

"Oh, yes," replied the lady, "you have hit it better this time; but, Sammy, is this really you?"

The boy had greatly changed too, not by accumulating fat, but by growing attractive; for, as remarked before, the growth of the mind makes its improving marks upon the countenance. Sammy had, also, grown considerably taller. He had, indeed, changed quite as much as Mrs. Millstone. But the former had been giving almost his entire attention to mental improvement, while the latter had been simply in pursuit of health of body, and she had considerably passed that point, and reached another condition of disease characterized by obesity.

"Did you know," asked the boy, "about our





losing Sponsie ; about his being taken away by my kite, and about our getting a monkey that puzzles us to tell whether he is Sponsie or some other fellow ? ”

“ Yes, I’ve heard all about that, Sammy,” replied Mrs. Millstone. “ Mrs. Biddlewicker told me the whole story. I think,” continued Mrs. M., “ I can tell whether it is Sponsie or not.”

Sammy bounded upstairs two steps at a jump to get the invalid monkey ; for, if there was any one question more than another he wanted conclusively settled, it was just this one.

As the boy on his return entered the office, the monkey sprang from his arm to Mrs. Millstone’s shoulder, as if delighted to see her. He winked and blinked at her in the most beseeching manner, as much as to inquire, “ Don’t you know me ? ” To Sammy’s mind this was the last evidence needed ; for the little fellow had never shown any partiality to strangers. Mrs. Millstone, however, shrugged her shoulders and drew her face away





THE MONKEY GLAD TO SEE MRS. MILSTONE.



from him, with a look of surprise mingled with fear.

"Why!" exclaimed Sammy, "are you afraid of him?"

"I must confess that I am," responded Mrs. Millstone, shaking the monkey from her, and rearranging her neck-dress which had been crumpled and displaced by the too familiar feet and paws of the little intruder. "That cannot be Sponsie. It doesn't look a bit like him."

The Doctor, who had been watching the whole scene with a degree of interest greatly heightened by his desire to determine from the actions of the animal whether or not he was the same one Mrs. Millstone had given to Sammy, reminded Mrs. M. of the great change that had taken place in herself since they had met. "A monkey," he added, "may change too, under some circumstances."

He then proceeded to say: "When the sick monkey was first brought here, it seemed impossible that Sponsie could have changed so greatly





in the brief space of forty or fifty hours. But as it could not be ascertained what experiences and hair-breadth escapes he may have suffered, we have all gradually come to the opinion that this is indeed he ; and now, when we find the creature, guided by the remarkable instinct peculiar to his species, recognizing you more quickly than either of us, I must say that I believe more than ever that the little foundling is none other than Sponsie."

"It may be so," replied Mrs. Millstone, gazing at the monkey with a stare which would have been considered impolite if directed to a person. "But I had by no means prepared my mind to see such a change. When Mrs. Biddlewicker told me about it, and of the possible exposures from which he may have suffered, I was reminded of something I read in Lippincott's about a balloonist, and thinking you and Sammy, under the circumstances, might be interested in it, I brought it with me : here it is."

The Doctor, with a polite "thank you," took





the magazine, and after hastily looking over the article, told Sammy it was an account of a couple of æronauts, Messrs. Glaisher and Coxwell, who made an ascension from Wolverhampton on a September afternoon, in the year 1862. "I will," continued he, "read what is stated as the experience of one of them after reaching a height of thirty thousand feet.

" 'Shortly after, I laid my arm upon the table,' Mr. Glaisher states, 'possessed of its full vigor; but on being desirous of using it, I found it powerless—it must have lost its power momentarily; trying to move the other arm, I found it powerless also. Then I tried to shake myself, and succeeded, but I seemed to have no limbs. In looking at the barometer, my head fell over to my left shoulder. I struggled and shook my body again, but could not move my arms. Getting my head upright for an instant only, it fell on my right shoulder: then I fell backward, my back resting against the side of the car, and my head





on its edge. In this position my eyes were directed to Mr. Coxwell in the ring. When I shook my body I seemed to have full power over the muscles of the back, and considerably so over those of the neck, but none over either of my arms or legs. As in the case of the arms, so all muscular power was lost in an instant from my back and neck. I dimly saw Mr. Coxwell, and endeavored to speak, but could not. In an instant intense darkness overcame me, so that the optic-nerve lost power suddenly, but I was still conscious, with as active a brain as at the present moment whilst writing this. I thought I had been seized with asphyxia, and believed I should experience nothing more, as death would come unless we speedily descended: other thoughts were entering my mind, when I suddenly became unconscious, as on going to sleep.' "

"And didn't he ever come to?" inquired Sammy, as quickly as the Doctor finished the last sentence.





“Oh yes,” responded the Doctor with a smile ; “otherwise he would not have been able to tell us this story of his experience. Just as soon as his companion observed his condition, he undertook to open a valve for the escape of some of the gas so that the balloon might descend. But Mr. Coxwell found, on attempting to use them, that his hands were frozen, while his neck was surrounded with hoar-frost. With his teeth he seized the cord attached to the valve, and dipping his head forward two or three times he succeeded in opening it, when the balloon took a decided turn downwards. On reaching a comfortable temperature and density of atmosphere, the downward course of the balloon was arrested by throwing out sand-bags, and the unconscious balloonist recovered. On descending to the ground, it was some time before the solid ice which had gathered about their instruments was melted.”

“Was it the cold weather up there,” asked Sammy, “that made the man unconscious?”





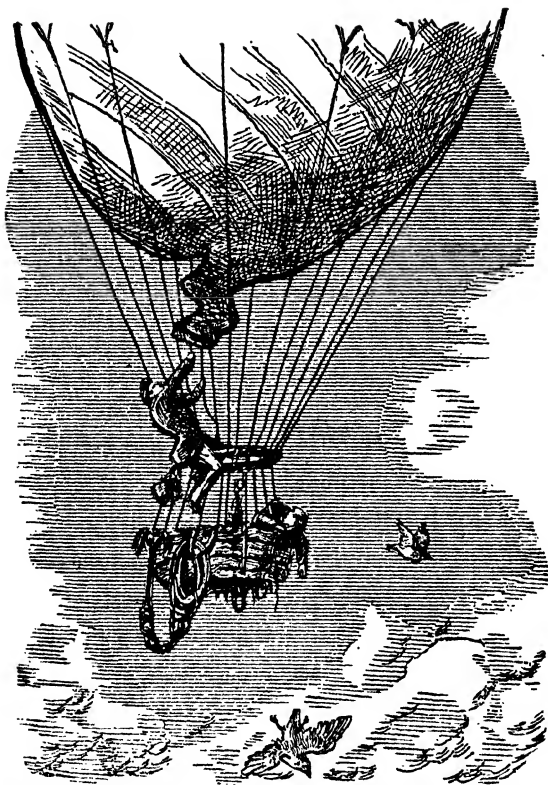
"His unconsciousness," replied the Doctor, "may be ascribed to three causes, any one of which would have been sufficient in itself to have produced that deadness of muscle which caused Mr. Glaisher's hand and arm to become powerless, and his head to drop upon his shoulder. And here is something, in explanation of all this, which bears directly upon what we were talking about the other day—the blood and its circulation."

Mrs. Millstone had settled back in an easy-chair and become a silent listener to the conversation going on between the Doctor and his bright-looking colored boy. She was particularly pleased with the interest exhibited by the boy when he inquired, at the close of the Doctor's remark :

"Do you mean by the three causes that the arterial tubes, vein tubes, and capillaries froze up, and that the freezing of any one of them would have stopped the circulation?"

"Not exactly, Sammy," responded the Doctor,





MR. GLAISHER AND MR. COXWELL PASSING ABOVE THE CLOUDS
WITH A BALLOON.



casting a radiant glance at Mrs. Millstone, as if a little proud of his boy.

"I must tell you," continued the Doctor, "that the air close to the surface of the earth is heavier or denser than it is far above it. The farther you ascend the lighter the air becomes. As the air grows lighter it is less adapted to the uses of the lungs in supplying the blood with the necessary amount of that essentially vital property called oxygen. Without a sufficient supply of oxygen the air-vessels of the lungs work feebly, the blood becomes loaded with the poisonous element called carbonic-acid gas, which, indeed, is more prevalent in extremely high places than it is near the earth's surface. This interference with the proper action of the lungs, and with the necessary airing of the blood therein, paralyzes the nerve-centres from which the forces which move the muscles proceed. This, then, alone would be sufficient to cause the arm to become powerless."

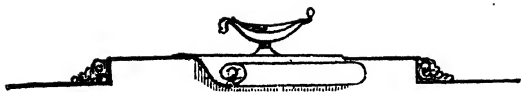
At this juncture all were attracted to the window





to see what was passing to the enlivening strains of a band of music. "They are 'rag-muffins,'" exclaimed Sammy. And so they were what are called "Fantastics." One fellow was costumed like an old lady carrying in her hand a cotton umbrella. Another was enveloped in a bear-skin, and bounded along on all fours like the animal whose head and skin he had appropriated. Occasionally he would rise on his hind legs, move his unwieldy head about, open a huge red mouth, and act altogether so much like a real bear that Sammy was sent out to ascertain for a certainty whether it was or not. As he opened the door the monkey slipped out and jumped upon one of the horses on which a sham monkey was riding, greatly to the amusement of by-standers as well as to the Fantastics themselves. But the sham monkey, with either a man or boy inside of the monkey-skin, used the real monkey so roughly, the latter was only too glad to escape as soon as he could scramble out of the rough fellow's clutches. He beat a quick





retreat to the house, with such a fit of coughing that Sammy had to carry him upstairs.

Returning, Sammy said the bear was a sham, and everything else, from the woman with the



THE FANTASTICS.

cotton umbrella, to the huge gorilla which brought up the rear, hammering with an enormous club the head of a stuffed baboon which he was carrying under his left arm.

All were soon seated again, when the boy im-





patiently reminded the Doctor that he had explained but one of the causes that paralyzed the æronauts' muscles.

"That is so," replied the Doctor. "I will now explain another." Mrs. Millstone seemed as much interested as Sammy in what Doctor Hubbs had been explaining, and interrupted him to say that she was in some haste to go, and she hoped he would hurry, so that she could hear the whole of it. She added quickly, "I thought, while reading the account in the magazine, I would like to know what it was that affected the balloonist."

"Well," resumed the Doctor, "I have already said that the atmosphere is more dense near the surface of the earth than it is up above in the clouds. It is calculated that the pressure of the atmosphere upon the whole surface of the body is equal to a weight of fifteen tons. As a matter of course, the animal organization, with all its capillary machinery, is so constructed as to accommodate itself to this pressure. The capillaries in fact





require this degree of pressure to preserve their proper capacity and action. In a balloon ascension, the æronaut, before he goes up many miles, reaches an atmosphere so light, that this pressure is very sensibly diminished, and then the capillaries become distended with blood. If he should ascend to a height, say of ten miles, with no great variation in temperature, his capillaries would become so congested, and the circulation of the blood so sluggish, that the nerve-centres would become paralyzed. Consequently, for the want of a proper atmospheric pressure, which we all enjoy who do not fly too far away from the face of "Mother Earth," the circulation of the blood may be so interrupted as to impair the nervous forces and thereby cause a loss of muscular power."

"How wonderful!" exclaimed Mrs. Millstone, taking out her watch. "I ought not to stop a minute more, but I will," added she, "if you will not be too long."

"Only a moment more," responded the Doctor.





“Now we shall hear about the freezing,” put in Sammy, as he fixed his position a little easier in his chair, and fastened his eyes more intently upon his preceptor.

“Yes,” said the Doctor, “you shall now be told something of the cause which you suspected. You will remember I told you once before that the atmosphere is said to grow one degree colder for every three hundred and fifty-two feet you ascend. According to the account given in the magazine, Mr. Glaisher and Mr. Coxwell encountered a variety of temperatures in their ascent, finding quite a comparatively warm current after passing upward to a height of fifteen thousand feet; but after passing a height of twenty-four thousand feet the temperature steadily decreased, so that solid ice formed about the instruments which they carried up for purposes of observation. They also suffered with cold while passing through the clouds. This coldness would, of course, chill the extremities, and also the capillaries immediately





underlying the skin, and thereby retard the circulation of the blood. Carry this chilling process far enough, and it would arrest the circulation altogether, and then paralysis of the nerve-centres would occur, attended with entire loss of muscular power.

“Hence you see,” added the Doctor, “that any one of the causes under consideration would have been sufficient to affect Mr. G, as described; but when all three were combined, and acted upon his system in conjunction, a condition bordering on asphyxia was quickly induced.”

“And what is paralysis and asphyxia?” interrogated the boy.

“One question at a time, if you please, Sammy,” remarked the Doctor. “Paralysis may be briefly defined as a loss of power in any part. For instance, there may be paralysis of the nerves of sensation, and then you cannot feel anything—not even a pin if it be pressed into your flesh. The nerves acting upon the muscles, called the motor





nerves, may be paralyzed, in which case you cannot move your arms or legs. Mr. Glaisher undoubtedly suffered paralysis of both the nerves of sensation and of motion."



"And now, Doctor," inquired Mrs. Millstone, who was deeply interested and did not really know as much about these things as Sammy did, "what is asphyxia?"

"I ought," responded the Doctor, good-naturedly, "to send both you and Sammy to your dictionaries, for both of these terms are in common use. But I think I will tell you," said the Doctor with a roguish flash of the eye. "Asphyxia may be defined as suspended animation, by which is meant apparent death. The motion of the

ASS-FIX-HAY ! (ASPHYXIA) ACCORDING TO SAMMY'S IDEA.





blood through the arteries, veins and capillaries may temporarily stop, and all action in the body cease. This condition, induced by the breathing of impure air, congestion of the capillaries, arteries and veins, excessive cold, or by drowning, would be properly called asphyxia, and, unless the cause producing it be quickly removed, the patient will not recover consciousness.

"Mr. Coxwell," continued the Doctor, "not only lost the use of his hands, according to this account, but they turned black."

"Turned black?" inquired Sammy, who thought it would be as difficult for a white skin to turn black as for his own to turn white; "what made his hands turn black?"

"Why, you ought to know by this time, Sammy," said the Doctor. "Cannot you tell?"

"Was it because the blood stopped circulating and congested the capillaries?" asked Sammy with a kind of starting motion as if a sudden inspiration had taken possession of him.





"Exactly so," rejoined the Doctor; "the motion of the blood through the arteries, capillaries and veins of the hands, having been partially or perhaps wholly arrested, the blood had no opportunity of visiting the lungs for purification, and, assuming the dark color peculiar to blood which circulates in the veins, it filled the capillaries to the point of congestion. Thus crowded with venous blood, the hands became black. Mr. Glaisher poured brandy over them, and what do you suppose that was for?"

"I shall not attempt to answer," replied Mrs. Millstone. "You are my Doctor. I don't pretend to know anything about these things."

"This is too true of almost everybody, excepting physicians, and they cannot be wholly excepted," answered the Doctor thoughtfully. "Why do people take so little interest in the delicate machinery of the human body, and in the remedies used to repair it when out of order?"

"Because there are so many smart folks like





you, Doctor," replied Mrs. Millstone with a sarcastic smile.

"Ah!" said the Doctor in a serious undertone; "the ignorance of the masses of the people in matters relating to their own bodies is indeed lamentable."

"I guess it was because the liquor warmed his hands," interrupted Sammy, with hardly his customary confidence.

"You are not wholly wrong in this random guess, my boy," replied the Doctor; "if it is a fact that alcohol, added to a fluid, evolves heat, and if the skin would absorb the alcohol contained in the brandy and convey it to the blood, just to the extent that it did this a certain amount of warmth would be produced. But a physician would reply that the brandy applied to the congested capillaries stimulated the circulation, or in other words set the muscular tissues in motion, and the motion of these tissues would necessarily impart motion to the blood lying dormant within them."





Raising her shawl and adjusting it upon her shoulders, Mrs. Millstone here arose and said she must go; that her husband would think she had eloped. On her way to the door she remarked to the Doctor, so that Sammy remaining in the office overheard it :

“ Well, I shouldn’t wonder if that monkey was Sponsie. If the sky affected those balloonists so badly, it might affect a monkey born in a hot climate still worse. Time makes many changes ; I should hardly have known Sammy ; you and Sammy did not recognize me ; and I am sure I should never have dreamed of that monkey being Sponsie. Good-afternoon.”

“ Good-afternoon,” responded the Doctor, and “ Good-afternoon ” faintly echoed the throat of Sammy, as he looked out of the window to see Mrs. Millstone go out.





CHAPTER V.

THE DOCTOR PREPARES TO MAKE PROFESSIONAL CALLS—THE UNEXPECTED CALL OF THE BACKWOODSMAN—HE WANTS THE NINETY DOLLARS DUE ON THE PROFFERED REWARD—BRIDGET BECOMES SAMMY'S CHAMPION—THE EXCITEMENT OF THE FAMILY—THE TALK ABOUT TIGHT-FITTING CLOTHING—THE SUDDEN LAMENESS OF THE MONKEY.



IMMEDIATELY on the departure of Mrs. Millstone, Doctor Hubbs moved about the office very briskly in getting ready to make a few professional calls. While mixing something in a small porcelain mortar, he told Sammy that the medicine that he was at that moment preparing, was for a young woman





who had, through ignorance of her body, so dressed it as to impair the circulation of the blood. The boy, who was brushing down smoothly the nap of his employer's hat, stepped up more closely



SAMMY HEARING SOMETHING NEW.

with the brush upraised, and at once became an interested listener.

"You see," said the Doctor, "when you come to understand how full the flesh is of tubes and capillaries, through which the blood must circulate





for the rebuilding of the body, it is not surprising that those who wear tightly-fitting clothing of any kind become the victims of disease.

“ The majority of women,” he remarked, “ can tell you better how their wealthy neighbors are dressed than how their own bodies are formed; and with this ignorance of themselves, notwithstanding their thorough knowledge of the exteriors of others, it is not strange that they commit grave errors in the construction of their clothing, especially if they consider an unnaturally small waist something to be prized and cultivated. Where the arteries penetrate the large muscles, they are, by a wise provision of nature, protected by what are called aponeurotic sheaths, or, in other words, strong resisting membranes which prevent them from being compressed when the muscles are in motion, and consequently contracting as well as expanding. But the tubes and vessels for the circulation of the blood in the softer parts of the body have no protection, excepting such as the





good sense of the individual sees fit to give them. Nor do they need any other protection than simply to be let alone."

By this time the mixture was prepared, poured into a vial and corked. "I shall be gone until tea-time," said the Doctor, putting on the hat Sammy had been brushing, and taking his departure.

What he had hastily said regarding the danger of interfering with the circulation of the blood, had given the boy all he wanted to think of during the Doctor's absence. While he was attending to his usual work, and thinking of the questions he should ask the Doctor on his return, there was a loud pull at the door-bell, as if the one who drew the knob intended to make a good job for the bell-hanger.

"Halloo, thar, Mister," bawled out a rough-looking man, as Sammy opened the door. "Where's the Dock?"

"He will not be in till six o'clock," responded





Sammy, looking wildly at the sunburnt face of the stranger.

"That's the tiffix, eh?" said the man, raising his slouch hat from his eyes, and wiping with a calico pocket-handkerchief the dropping perspiration from his brow. "Sorry he haint here. How's the monkey, Bub? Hez he kicked the bucket or hez the Dock cured the little sassbox?"

"Oh!" exclaimed Sammy, "you are the man that brought back Sponsie, are you?"

"I reckon I be; don't you know me? Me an' my old woman is over here doin' a little tradin', and I wouldn't mind if the Dock would plank over that ninety dollars if the little varmint is alive and his'n." Sammy asked the man in, and explained to him how greatly they had been troubled to decide whether the monkey was Sponsie or not. After the boy had told him all the circumstances which had occurred, leading them to suppose he might be the veritable monkey which was carried off by the kite, including





his seeming recognition of Mrs. Millstone that very afternoon, the backwoodsman replied gruffly :

“Wall, I reckon them ninety dollars is mine anyhow ; an’ you kin tell the Dock as how I shall



THE BACKWOODSMAN
DEPARTING.

be over here in a week or two agin, and will take away the ‘spondulix’ or the brute, jist which he pleases ; don’t make no difference to me.” Saying this, he took his pipe from his pocket, scratched a match upon the clean painted wall, and, lighting the offensive tobacco, walked out puffing like a high-pressure steamboat.

As he moved down the street, you might have imagined that he was propelled by some steam-power, and that the thick clouds of smoke which rolled before the crown of his hat were from the smoke-stack.





This intrusion, and the suggestion of a possibility of the monkey being taken away, were not very agreeable to the boy. He opened the door to let out the tobacco smoke, brushed up with wisp-broom and dustpan some cakes of mud which had fallen from the man's boots, and then, with a piece of wet sponge tried ineffectually to efface from the wall the mark left by the match.

"If," muttered he to himself, "this monkey is Sponsie, I cannot bear the idea of his going to live with this rough man and his 'old woman,' as he calls her. But," continued he, "even if it is not Sponsie, I think too much of the little fellow I have saved from death to allow him to go where, perhaps, his cough would not be taken care of, and into hands that might not give him enough to eat."

Sammy had not yet learned that people cannot always be accurately judged by their manner and exterior; that this rudeness of action and speech might be owing rather to a want of familiarity with





the refinements of society and the ways of the city, than to any real badness of disposition. Consequently, he was quite right in feeling a reluctance to intrust anything in which he felt so deep an interest in the hands of a person so seemingly rough and ill-mannered.

The boy felt delighted when the Doctor returned, and though the tea-bell had rung, he and Sammy were closeted for about fifteen minutes. No reporters were present! but as the Doctor came out he was heard finishing a sentence thus: "But I will take care that the monkey does not go back, unless the man is perfectly unreasonable."

Sammy followed, clapping his hands rapidly, but so softly that even the Doctor did not hear him, and in a minute more he was waiting upon the family at the table. The call of the backwoodsman was of course the topic of conversation, and Mrs. Hubbs said that she would rather do without a new grenadine her husband had promised her than to have the monkey taken away.





Bridget, who overheard the conversation, and who had again become the firm friend of Sammy, told the boy as he entered the kitchen for a little more cream :

“Faith an I’ll dhrive the ould bear from the duer wid a pail of scaldin’ hot wather, sow I will, if he is afther comin’ round fur Sponsie, the darlint ! It’s a purty boy he’d be makin’ of the pet, to be shure, wid his dirty tobaccer an’ muddy ould fate !”

When Sammy saw Bridget’s eyes flashing, and was reminded thereby of how hot she made the kitchen for them all the morning after “April-fool’s-day,” he made up his mind that Bridget would be better than a watch-dog to frighten the woodsman away if he did not behave himself.

The Doctor, who heard the familiar voice, and most of that which was said, laughed heartily, and as Sammy re-entered, remarked, “Then Bridget proposes to serve the backwoodsman just as she would a live lobster, does she?”





“ Yes, sir,” replied Sammy, showing his teeth and whites of his eyes with an embarrassed giggle, as if he did not quite know if it was right for her to make such a threat.

“ Of course,” rejoined the Doctor, “ we must either return the monkey or pay for it. Unless the man will compromise the matter in some way, in consequence of our inability to determine if it be Sponsie, I shall have to pay him the ninety dollars or give up the little fellow ; and, considering how all the family feel about it, I cannot and will not do the latter.”

This remark set Sammy’s anxiety entirely at rest, and after tea his mind turned again to the young sick woman the Doctor had been to see. “ Will you please,” asked the boy, “ tell me how you found that girl that made herself sick by wearing tight clothes ? ”

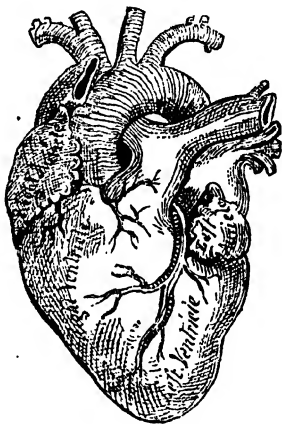
“ Well, Sammy,” replied the Doctor in a subdued tone, “ I fear she will die. She has induced disease of both the heart and lungs, by the foolish





habit of tight-dressing, commenced by her mother when she was a mere child, and since continued by herself.

“By the compression of the capillaries about the waist,” he continued, “she interfered with the circulation of the blood through them. By contracting the ribs which were designed by nature to protect the heart and lungs, she made the action of the heart laborious, and the lungs too small to sufficiently vitalize the blood by deep breathing. In addition to



THE HEART.

this compression of the waist, she wore her garters too tightly, in consequence of which the circulation of the blood in the lower extremities was interrupted. This interruption of the passage of warm





arterial blood to the lower parts of the limbs, led to habitually cold feet, and when the feet are always cold, you will find that some of the vital organs are congested by the presence of too much blood. Oh!" exclaimed the Doctor with still greater earnestness, "it is, indeed it is, a terrible, a suicidal thing, to thus interfere with the circulation of that fluid which, when undisturbed, dispenses life to every part of the body, and removes the dead and decaying matter which must otherwise choke, even unto death, the struggling capillaries, arteries and veins.

"Everything we wear," he added, "should sit so loosely that the motions of the body in breathing shall be encouraged, rather than in the least degree retarded; and so lightly upon the skin that the capillaries can carry on their work of receiving arterial blood and sending away the dark blood without the least obstruction. Even the hat should rest easily upon the head, and the boots fit comfortably to the feet. Tight-fitting boots





and shoes are exceedingly injurious, in consequence of their compression of the arteries, veins and capillaries of the feet. Not only are cold feet induced by close-fitting shoes, but I have met with cases of partial paralysis induced by wearing tight boots. Headache not unfrequently results from a tight-fitting or inelastic hat. A headache so caused tells you plainly that the circulation of the blood is impeded, and a derangement of the circulation in any part, unless overcome, means death. Perhaps not death in a day, a week, or a year; but, nevertheless, certain death, and sometimes more agonizing, because the act of dying is protracted.”.

Sammy was as spell-bound as if he had been mesmerized while the Doctor was thus explaining to him the destructive effects of interfering with the healthful circulation of the blood; for, knowing as he did that the body was like a great sponge through which the blood was circulating for the purpose of giving new life to every part,





he saw at a glance how unnatural it was to squeeze it in such a way as to, in the least degree, impede the blood's motion.

"I have seen lots of grown-up folks," finally interrupted Sammy, "wear boots that they had to pull with all their might to get on. What makes them do it?"

"Simply because they do not know any better," replied the Doctor. "They are perfectly ignorant of all that appertains to the prevention of disease, and then, when they get sick, they run affrighted to the physician. Sometimes they get well, and quite often they do not; for at the same time they are receiving treatment for something induced by one bad habit, it is quite likely they are pursuing another which is still further complicating their complaints. When you get to be a physician yourself," continued the Doctor, "the bad habits of thoughtless people will be a continual surprise to you. Last winter, for instance, you would see ladies in Central Park





A LADY'S WINTER WARDROBE.



and on Broadway with heavy fur cloaks, and in many instances fur caps, while, if you got a peep at their feet, you would find that they were clad in cotton hose and cloth or thin leather shoes ! ”

“ Does the heavy fur cloak rest too heavily upon the capillaries ? ” inquired Sammy.

“ Oh, no ; the pressure of the cloak may not interfere with the capillary circulation,” replied the Doctor. “ In this instance, the circulation is injuriously affected by a want of uniformity in the external warmth of the body.

“ You have noticed,” continued the Doctor, “ when you put your feet in hot water, how full the veins become.. This is because the tissues are relaxed, and the blood is attracted by the heat. Wherever you give undue warmth to the body, the blood will immediately press in. Covering the body unequally with clothing will congest some parts and deprive others of blood.”

“ Oh, I see ! ” exclaimed Sammy. “ When a





lady puts furs on her body, and thin stockings and shoes on her feet, the blood will not go down into her feet; that's what you mean!"

"Precisely," responded the Doctor. "For a person to dress the upper part of the body with flannels and furs, and the lower with cotton and other light fabrics, is simply to extend an invitation to the blood to avoid going into the extremities altogether. And it is pretty apt to accept the invitation, because the feet are quite a distance from the heart, and the circulation in the extremities is not so easily kept up as in those parts nearer the heart."

"Then you would advise dressing the feet and legs more warmly than you do the upper parts of the body, would you?" interrupted the boy.

"No," replied the Doctor; "I do not mean that. What I do mean to say is, that the feet and limbs should be dressed not less warmly than the upper parts of the body. The vital organs should





be protected from exposure to extremes of cold in civilized life ; and when it is decided by the experience of a person just how much clothing is desirable for this purpose, it should be distributed equally over the entire surface of the body, to the feet and legs as well as to other parts. If flannels and furs are considered necessary for the protection of the chest, then flannels and furs should extend to, and envelop the feet. You see this is simply common sense. Simply a rational precaution to keep up an equal circulation. Go naked like a savage," added the Doctor, "if you will; but when you begin to clothe the body, distribute the clothing so impartially that nature's functions shall go on without a bribe here"—pointing to his chest—"for congestion; or neglect there"—pointing to his feet—"causing insufficient circulation. Improper habits, affecting the circulation of the blood," concluded the Doctor, "are some of the most fruitful causes of disease and death."

Sammy was just about to ask a question or two.



when the supposed Sponsie came noisily through the hall with an improvised cane, consisting of a round from an old chair in the attic. The Doctor and the boy both started at once to see what was the



THE MONKEY ACTS LAME.

matter. The monkey walked as if unable to touch his left foot to the floor. Sammy caught him up, and he and the Doctor examined the foot and toes very carefully. Not being able to discover anything, they put him on the floor again, when he imme-





diately resumed walking just as before, acting as if his foot was very painful. He looked up, too, in a most pitiful manner, as if he wanted sympathy. He chattered plaintively, and gave every evidence of being in great distress.

Again Sammy caught him up, and held him in the light of the window so as to enable the Doctor to examine every part of the foot and leg. In making the examination he pinched every suspicious place to see if the monkey would wince; there was no tender spot that could be found.

"What do you suppose it means, Doctor?" inquired Sammy, as he again put the monkey carefully down. At once the little fellow assumed the same attitude of lameness, with the left foot drawn up, and went about, thump, thump, thump, on the floor, sounding as if he had a wooden leg.

"It is indeed unaccountable," replied Doctor Hubbs, who began to half suspect it to be a monkey trick. "Do you not think he is feigning all that lameness, Sammy?" The boy watched the





limping monkey a few moments, and then said he "could not think the monkey was fooling."

"Well," remarked the Doctor, carelessly, "I am not going to let the little scamp arouse my sympathies very much yet. Monkeys are strange creatures. Time will tell." •





CHAPTER VI.

THE BEGGAR ON THE STEPS—THE DECEPTION
OF THE MONKEY EXPOSED—THE FRIGHT OF
THE LITTLE FELLOW—THE PULSE—THE
MONKEY AS A SNUFF-TAKER.



ANOTHER beautiful May morning! No wonder that every day in the whole month was observed with festivities by the ancient Romans! The trees and shrubs have now put on all their spring clothes. During the first few days they looked as though only half robed for a bath; but, as gay June approaches, crowned with her wreaths of roses, they array themselves in full dress. We will hope that the beautiful rain-





bow may arch the heavens as the Rose Queen marches in.

Ah! There's a beggar on the steps; a poor lame man in soldier's blue. He is unable to touch his left foot to the steps, nor can he raise his left hand.

"Here, Sammy," said the Doctor, who was standing by the front window, "take this out to him," handing the boy a piece of money.

As the lame man hobbled away, assisting his right leg by a cane held in his right hand, the Doctor laughed and exclaimed, "The secret is out, Sammy; that's how the monkey learned to limp!"

The boy ran to the window to see the man walk, and on watching his motions, said "that the monkey must have seen this man somewhere yesterday."

"Yes," continued the Doctor, pointing to the way the soldier drew up his left foot, and the beseeching manner in which he approached a man





upon the sidewalk. "That is precisely the expression that the monkey put on as if he wanted sympathy. Did you notice, Sammy," inquired the Doctor, "if the monkey carried his left arm by his side in that way?"

"I don't remember," replied the boy. "I will go and bring him down and we will see." When Sammy left his room a little before, the monkey was still walking with the chair-round for a cane, as if painfully lame.

In a moment more, Sammy was back again with the monkey, who walked just as he had done the night before. "Sec," said Sammy, "he does carry that left hand and arm in the same dangling way, and holds his cane in his right hand."

"You little troublesome impostor!" exclaimed the Doctor, fixing his eyes sternly upon the monkey, and assuming an unusual expression of severity, which, after all, was fringed all around with the radiance of a smile like a silver-edged cloud at sunset. "You little scamp you!" continued he,





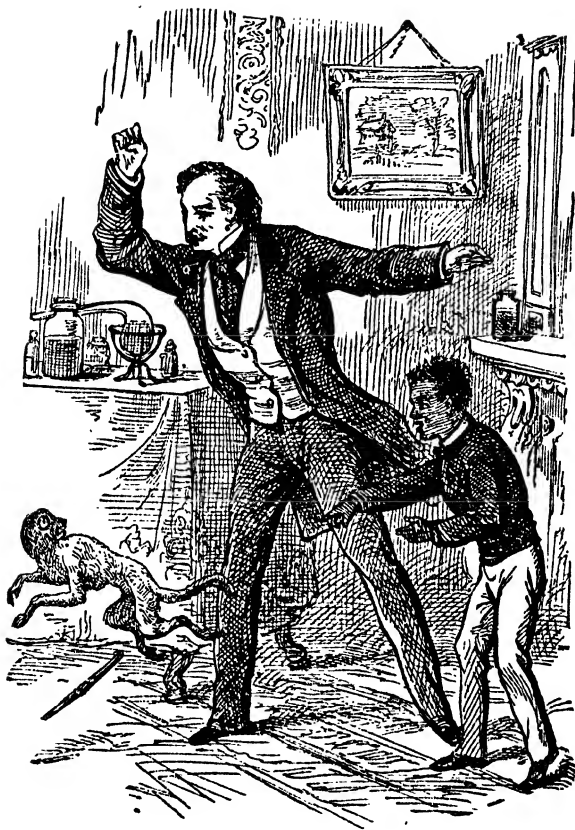
with a little more successful frown. This made the monkey start a little. Seeing this, the Doctor piled on the agony a little harder. "You little deceptive villain! *Scamper!!*" And with this emphatic exclamation the Doctor brought his foot down firmly.

He did scamper! You should have seen him! He dropped his chair-round, which went rolling upon the carpet, and leaped step by step upstairs, as nimble as a squirrel.

The Doctor and Sammy broke into a fit of loud laughter, which so excited the monkey's curiosity, that he immediately returned. The two were surprised to again see the little fuzzy head and nervously moving eyebrows staring around the door-case. It is evident he could hardly reconcile this outburst of merriment with the Doctor's assumed expression of anger.

Sammy took pity on him and raised him into his arms. The poor little fellow's heart was palpitating as if it would burst through his chest.





THE DOCTOR SCOLDING THE MONKEY.



"I suppose," said Sammy, "his blood is going jumping through his arteries and veins like everything, now isn't it?"

"Yes," responded the Doctor; "if you should feel of his pulse now you would probably find it at about one hundred and fifty!"

"Pulse?" repeated Sammy with an expression of inquiry; "what do you mean by the pulse?"

"The pulse," answered the Doctor, "is the motion produced in the arteries by each contraction of the heart in its efforts for the distribution of the blood. The usual place for feeling the pulse is at what is called the radial artery in the wrist. You will notice these pulsations if you will place the second finger of your right hand across your left wrist, about an inch above the base of the thumb, resting the end of the same against the outer bone, and allowing the ball of the finger to drop in the depression just inside of it."

Sammy at once felt for his pulse and commenced counting.



"Now count as you feel the beats," said the Doctor, taking out his watch and holding it before him as Sammy did so. The boy counted audibly till he reached eighty-four, and then the

Doctor said, "Now wait, Sammy. Your pulse has made eighty-four beats in one minute. Let us see; you are a little over fifteen years of age, are you not?"

"Yes," he replied; "does my age make any difference?"

"Certainly," said the Doctor. "A healthy male

child, a year old, will be found, on examination, to have about one hundred and twenty beats per minute; between fifteen and twenty he will have from seventy-five to eighty-five per minute; and when he passes twenty-five he will have for



FEELING THE PULSE.





several years seventy to seventy-five beats per minute ; and as he grows older the pulsations will grow less frequent."

"Did you mean anything by saying male child?" asked Sammy.

"Yes," was the ready answer. "There is an average of from ten to fourteen more beats per minute in the arteries of women than those of men. It is also observed that the pulse is quickened by ascending to an altitude where the atmosphere is less vitalizing. In the story of the æronauts already referred to, Mr. Coxwell at an elevation of between three and four miles panted for breath."

"And why was this?" inquired the boy.

"Because," replied the Doctor, "there is less oxygen in the atmosphere at this distance from the earth, and the lungs are compelled to work more rapidly to preserve the purity of the blood.

The air that most of us are accustomed to breathe contains about twenty-one per cent. of oxygen. If we ascend high enough to encounter an atmos-





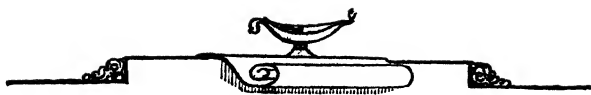
phere which contains only fourteen per cent. of oxygen, we must inhale three times to receive as much of that element as we do near the earth's surface in breathing twice."

"And then does this quicken the movement of the heart?" interrogated Sammy earnestly.

"Certainly," responded the Doctor. "When a person is in a healthy condition, the proportion between the movements of the lungs and those of the heart is as one to four or five. Any perceptible variation from this proportion indicates a condition of disease. Consequently a person in health ascending in a balloon to a height where the atmosphere is less impregnated with oxygen, will find both his heart and his lungs working more actively. This will be indicated not only by more active breathing, but by more rapid beatings of the pulse.

"Travellers among the mountains for this reason find that they cannot endure so much exercise in places of great elevation as they can in the valleys. They are not only made to pant by the muscular





effort of climbing, but by the less vitalizing properties of the air as they ascend. It is quite remarkable that those who live constantly on the mountains, for some reason, get used to the different qualities of air, and are able to pursue active physical labor without experiencing more active breathing or more rapid heart-beating than the inhabitants of the plains and valleys. Nevertheless, considering the influences of the atmosphere upon the circulation, it is well for those having any disease of the heart to avoid elevated locations. Even transient visits to mountain-peaks are not judicious for this class of invalids.

“Diseased conditions,” continued the Doctor, “almost invariably affect the heart’s action, and the normal proportion between its movements and those of the breathing organs. It is for this reason that the physician is in the habit of placing his finger on the wrist over the radial artery, and, if somewhat in doubt, his ear, at the same time, against the breast of the patient.”

5*





During this conversation the monkey had left Sammy's lap, his palpitating heart having been quieted by his master's soothing hand upon his head and back. But he was always stumbling into mischief. No sooner was he out of one scrape, than he generally managed to get himself into another. Just now he was sneezing and coughing severely enough to tear himself to pieces.

Sammy ran to see what was the matter. This time he had filled a pill-box with cayenne pepper stolen from Bridget's tray in the kitchen, and had been indulging in the exercise of snuff-taking in imitation of an old lady living next door.

He was the sorest-nosed monkey for a few days you ever saw. His lungs that day and night were so irritated by coughing and sneezing, that he required Sammy's almost constant attention. The Doctor expressed the fear that he would die. But children and grown people are doing just such indiscreet things every day, by which they greatly injure their health. The monkey cannot very well





be taught better,* but human beings can be, and they ought all of them to learn better. The old lady next door was injuring herself by snuff-taking. She did not inhale into her nostrils something which produced such immediate effect as the monkey's cayenne; but in time she will be more injured by her pulverized tobacco than the monkey was by his pulverized pepper.





CHAPTER VII.

SAMMY AND THE STRANGE BOY—HE IS PLEASED WHEN HE FINDS OUT WHO HE IS—THE BOY CLAIMS TO KNOW WHERE THE REAL SPONSIE IS—THE INTERVIEW BETWEEN THE DOCTOR AND SAMMY—THEY TALK ABOUT THE LYMPHATIC SYSTEM—THE DOCTOR GOES TO SEE THE PLUMBER'S BOY—THE LATTER ENGAGES TO FIND SPONSIE—SAMMY'S REFLECTIONS.



NOTWITHSTANDING, an almost sleepless night with the would-be snuff-taker, Sammy was on hand bright and early for his next day's work. With broom in hand, the boy might have been seen brushing the dust from the steps and sidewalk, keeping time with his broom to a lively air which he was whistling





It is a noticeable fact, by the way, that a great many boys are good whistlers, and that everybody around them is compelled to be a good listener whether he is charmed with such music or not. Sammy had an excellent pair of lips for this kind of warbling, and it was a matter of great surprise to him, that the Doctor, when around, would soon become surfeited therewith, and courteously tell him—"That will do, my boy, we will have the balance of that next week." Such an interruption and almost indefinite postponement were particularly surprising and annoying when they came just as he was getting off a shrill trill on some of the higher and to him the most fascinating notes. Sammy was just emitting such an artistic strain, when he was suddenly brought to silence by a familiar slap upon the shoulder, accompanied with, "How be yer, Sammy?"

The interrogator looked with a pair of roguish blue eyes from a face which would have been white, if washed. As it was, Sammy was the





better Caucasian, and had the advantage of the stranger in having eyes that corresponded with the complexion of his skin.

Sammy stared at him for a moment in silence, and, concluding that he was simply one of those street boys who pride themselves on professing to know everybody, he resumed his motions with his broom, saying, "I guess you had better go on about your business."

"Oh, yer feel mighty big, don't yer?" retorted the strange boy, with a wrinkled nose and a curled lip, "jist 'cause yer workin' in 'a doctor's shop? Cetch me chasin' 'round here agin when yer monkey gits away!"

"Oh!" exclaimed Sammy, his face beaming with an expression of recognition. "You are the boy that came here and told us where Sponsie was carried away by the kite."

"I reckon I be; yer think now 'twill pay to speak to me, I s'pose," rejoined the smutty-faced boy.





"I really thought," said Sammy meekly, "that I did not know you, but now I see that I do; here's my hand. The Doctor always felt very thankful to you for running here and telling us



SAMMY AND THE SUPPOSED STRANGER.

when Sponsie was taken off, and I am sure I do too." While Sammy was saying this, the monkey, which had been sitting on the railing looking very sick, crept down to where he was standing.

"Why! you've got a new monkey, hain't





yer?" said the boy, as he approached the animal cautiously, and looked him over from head to tail. "Bill Niffkins told me that you had found Sponsie."

Sammy then proceeded to explain to him where this monkey was found and gave his reasons for believing it really was Sponsie.

"Fudge!" exclaimed the boy. "Guess yer didn't see that 'ere advertisement in the *Staats Zeitung*, did yer?"

"In the what?" asked Sammy, perplexed with the peculiarity of the name.

"*Staats Zeitung*," replied the boy; "the Dutch paper," he added, evidently not knowing the difference between Dutch and German.

"I did not," replied Sammy; "I can not read Dutch; can you?"

"No; but Lu Richter kin," replied the boy, "and he told me about the advertisement in the *Staats Zeitung*, what said a Dutchman in Hoboken spotted the monkey clean on top of his house, jist





'bout the time you lost Sponsie. An' I was comin' 'round here to tell yer 'bout it, but met Bill Niffkins, and he said yer had got yourn back. So I went back ter the shop."

"Where is your shop?" asked Sammy, at once determined in his mind to have this matter looked into.

"Oh, I work to Mr. Macdougals, on the Bow-ery. Here's his keard," said the boy, fumbling in his pockets, and finally handing Sammy his employer's business card. "I will see Lu 'bout it, Sam," continued the boy; "he works in the same shop. Me and him is helpers. That air ain't Sponsie skootin' 'round yer legs. He's a fraud! I'll find Sponsie fur yer."

While saying this the boy walked away, so that by the time he had finished he was half-a block off, and Sammy, carrying the sick monkey back to the railing, resumed his sweeping.

The Doctor, noticing from his chamber window the two boys in conversation, descended the stairs,



when he saw the stranger move away, and, stepping to the open door, asked, "Who was that smutty-faced fellow, Sammy?" "He's the boy that ran around here and told us when Sponsie was carried

away by the kite," replied the boy. "He says that a monkey was found about that time, on top of a house in Hoboken, and that a chap by the name of Lu Richter read the advertisement in a Dutch paper"—and here Sammy paused—"I cannot," he added, "remember the name of it."



LU RICHTER.

The Doctor named over the prominent German papers published in the city, and when he mentioned the *Staats Zeitung*, the boy interrupted him with, "That's it. Then there is such a paper as that, is there?" asked Sammy, beginning to think





there might be something in the story which he had just heard. *

"Oh, yes," responded the Doctor; "but you know, Sammy, how many lost monkeys were brought here in answer to my advertisement. The one the boy told you about may have been one of those exhibited here the next day after I advertised."

"But this one was found on top of a house," said Sammy, who had finished sweeping, and was now ascending the steps. He and the Doctor, followed by the monkey, entered the office room together, and Sammy showed his employer the card of the man for whom the strange boy worked.

"Patrick Macdougall, practical plumber," read the Doctor, as he raised the card to his eyes.

"Yes, and this boy said he was a helper," rejoined Sammy. "What's a helper?"

"If you will look at my plumbing bills," replied the Doctor with a laugh, "you will find out."





After specifying so many pounds of pipe, and so many of solder, a trap, a faucet, grinding faucets, and so many hours' work of men, you will see added an extra item for helper. This helper is the boy who stands around while the plumber is doing the work, and you would imagine that he was the superintendent of the job except for the fact that now and then, he is ordered to go and get that pipe, or that kettle of solder, or something else. He is what his name implies—a helper."

The breakfast-bell rang while the Doctor was saying this, and in a few moments he and Mrs. Hubbs were seated at the table, with Sammy on hand with his tray.

Sammy's interview with the boy was discussed, and the Doctor determined that some time during the day—the first thing if possible—he would call upon the plumber, and, if he could, learn of the boy Richter the English of the advertisement which appeared in the German paper.

After breakfast the Doctor returned to his office,





and when Sammy had finished his, he took the duster, though not quite in the order of his usual work, and commenced dusting the office things. He hoped something further would be said about the advertisement, and this work placed him in a way of hearing anything his employer might say.

"That word helper," remarked the Doctor, "reminds me of a fact in physiology, which I ought to mention to you."

This was not quite what Sammy was looking for, nor was it the topic just then uppermost in his mind. But in a few moments he was even more interested in what the Doctor had to say than he would have been if he had continued talking upon the subject before the family at the breakfast-table.

"The arteries, veins and capillaries," continued the Doctor, "have what might very properly be called helpers in the lymphatic vessels, glands and ducts."





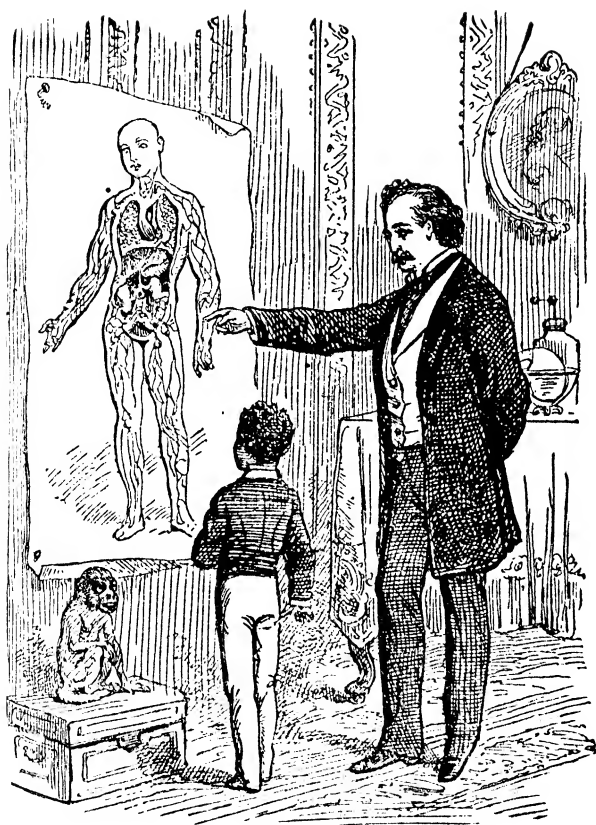
“Emphatic vessels, ganders and ducks!” interrupted Sammy with a most bewildered look!

The Doctor laughed outright, and then repeated more slowly what he had said. Going to the closet he took from the shelf a large picture, which he pinned against the wall.

“There,” said he, “is a representation of what is called the lymphatic system. The various tubes which I called ducts are represented in the dark lines running up the body. The lymphatic vessels exist in nearly all parts of the flesh of the body, and in the stomach and intestines. These, together with the lymphatic glands, which have their proper location in various parts of the body, absorb lymph, and this lymph the tubes or lymphatic ducts convey in nearly direct lines to some large veins situated at the base of the neck.”

“And what is lymph?” asked Sammy in a desponding mood, for again the feeling came over him that he never should be able to learn and remember all the strange things appertaining to the





THE DOCTOR'S PLATE, SHOWING THE LYMPHATIC SYSTEM.



human body. He thought after learning all about the blood-tubes, that he knew everything about the circulation of the fluids of the body.

"Do not get discouraged, Sammy," said the Doctor cheerfully. "The doctors themselves do not know all about the human system yet. You can learn all they know, with a little more of that patience and perseverance you have thus far exhibited. Some medical writers call lymph white blood. This is perhaps not strange, but they go on to say that the lymphatic tubes and vessels distribute this white blood to the tissues which need this kind of nutrition! But the general opinion, and without doubt the correct one, is, that instead of carrying the fluid called lymph out to various parts of the body, they suck it up from the parts through which they are distributed, and carry it to the general circulation, for further use and changes. Believing that the lymphatic system does this is why I call it the helper."

"Well," asked Sammy, "can't you tell me what





lymph is, and where it really comes from?" The little anatomist always had a peculiar way of "going for him," as the boys say, when the Doctor was a little blind in his explanations. Perhaps in these instances he imagined he had cornered his preceptor. Be this as it may, his impatient questions were always softened by a courteous demeanor.

"I will try," drawled out the Doctor with a roguish expression of meekness, as if Sammy were the teacher and he the pupil. A smile stole over the countenance of the boy as he said this.

"The lymph," continued he, "differs somewhat according to the location of the vessels containing it. In most of them it is found to be a thin, transparent, and slightly alkaline fluid. Those located in the small intestines, suck up and convey certain fatty portions of the food undergoing digestion to what is called the thoracic duct, the contents of which are thicker and more opaque, varying in quality according to the food which is being di-





gested. Those along the entire course of the small intestines are commonly called lacteals, and are like economical foragers who seem disposed to gather up and save everything at all nutritious. The contents of these vessels are of a milky thickness and color. Quite likely many of the lymphatic vessels, and especially those near the surface of the body, assist the venous blood in gathering up the worn-out and useless matters that are to be carried to some of the eliminating organs to be cast out. Here, again, the lymphatic system may be called a 'helper.' Throughout nearly the entire body the blood-tubes are accompanied by these lymphatic tubes, and at the junction of two large veins in the neck, called by anatomists subclavian and internal jugular, all the contents of the lymphatic tubes are, as fast as they arrive at that point, emptied into the blood where the nutritious portions of the lymph are very soon converted into blood itself."

"Can't the food go into the blood in any other





way than through the lymphatic system?" inquired Sammy.

"It was once thought not," replied the Doctor. "But more recent investigations show that the lacteals take the fatty particles of nutrition, while certain other vessels, connected with the blood-tubes, convey to the circulation all those other nutritive matters which the system needs. The lacteals, in this region, sustain the same relation to the lymphatic avenues, that places and courts do to the streets upon which they are located. The lacteal system is, in fact, a part of the great lymphatic system, and when digestion is not going on, its contents have the appearance of ordinary lymph. During the digestive process, they suck up a milky fluid called chyle, which flows into the blood at the junction of the veins before mentioned, and after going to the heart for orders and to the lungs for an airing, it is soon lost in the crimson fluid which is carried by the arteries to every part of the body for its rebuilding."





“Now,” concluded the Doctor, “you go on with your work, and I will drive down to Macdougals, the plumber, and see if I can find that boy, Lu Richter.”

We will now leave Sammy with his office work, and follow the Doctor. As some of my young readers in the country may not know what a plumber is, I will here stop to say that in cities there are large iron pipes laid under the ground in the streets, to convey water from some large reservoir to all the houses; and then there are large brick culverts, called sewers, also laid under the streets, for carrying away all the dirty and waste water. The plumber is the man who connects buildings, and often every room in our best houses, with the large street pipes and sewers, by means of tubes of lead or block tin, so that good water for drinking can be drawn in any part of the house by turning a faucet attached to one of these tubes; or, wash water may be carried away by being emptied into a wash-basin





having a hole in its bottom connecting with tubes leading to the sewer.

As the Doctor jogged along in his two-wheeled phaeton, bowing here and there to a patient or acquaintance, he became so absorbed in thought that he would have passed the plumber's, had not the smutty-faced boy noticed him from the door.

"Mister Hubbs, Mister Hubbs!" called out the boy, running as fast as he could after the passing carriage. Turning his head to look out at the back of his phaeton, the Doctor was suddenly reminded that he was passing the place, and seeing the boy coming up swinging his hat and hallooing at the top of his voice, at once recognized him as the one who was talking to Sammy in the morning.

"Mister Hubbs!" repeated the boy, approaching the phaeton, almost breathless from running. "That ere ain't Sponsie what Sam's got. I know where Sponsie is. A Dutchman has got him over into Hoboken."





"But what makes you think so?" inquired the Doctor.

"'Cause he has. He advertist him in one of the Dutch papers."



DOCTOR HUBBS INTERVIEWING THE PLUMBER'S BOY.

"But you do not know that it was Sponsie that he found and advertised," responded Doctor Hubbs.

"I'll bet yer I do now," replied the boy, assuming an air of great confidence. "Lu Richter





read me the piece in Dutch, and then told me what there was into it. It said as how a monkey, with a piece of string hitched ter him, was found on top of a flag-pole on this old Dutchman's house, and it said as how the owner could take him off by payin' 'spenses. I knowed as quick as he showed it ter me that that 'ere monkey was Sam's, and as quick as I shut up the shop I started up to your house to tell Sam 'bout it. But Bill Nifkins flung his hat at my head jist as I was passin' the corner of Nineteenth street, and when I got ter talkin', he said as how Sam had got the monkey back ; so I didn't go no further."

"Then you have seen the monkey, have you?" asked the Doctor, who implied by an imperfect understanding of the boy that he had been shown the monkey as well as the advertisement.

"No, I hain't seen the monkey—I hain't said I saw him nuther," answered the boy rather impatiently. "But I'll bet yer that that is Sam's monkey what's over to the Dutchman's. That





thing there what Sam's got hain't Sponsie by a great shot. Sam's a pesky little fool if he thinks so. He hain't no more like Sam's monkey than a yaller cur is like a black-and-tan purp."

"Where is the boy Richter?" interrogated the Doctor.

"He's on a strike with the 'jurs,'" quickly replied the boy. "Hain't nobody ter work. I'm 'prentice, and Lu works by the day. I can't do nothin' till the men come back ter their jobs."

"Are you sure you know Sponsie when you see him?" the Doctor inquired.

"I reckon as how I do. I could pick Sam out of a crowd of niggers, and I could spot Sponsie if he was in that there big cage of monkeys at Central Park," responded the boy, with a most assuring expression stealing over his sooty-looking face.

"Well, then, if you are doing nothing in consequence of the plumbers' strike, what will you charge me to look up young Richter, get the ad-





dress of the Dutchman in Hoboken, and go over and see that monkey?" asked Doctor Hubbs. "If, when you come to see him, you feel confident that it is Sponsie, I will pay you liberally to return him to Sammy."

"I can't be confidenter than I be now," answered the boy, whose opinions to himself were of as much value as positive knowledge. If yer want me ter go over there and fetch him ter Sam I'll do it, an' yer can pay me what yer a mind to."

"The finder will hardly be willing, after keeping him so long, to part with him without being well paid for his trouble," said the Doctor. "Furthermore, he will want pretty good evidence from the claimant that the monkey really belongs to Sammy. You better go and see first, and then, if you find that it is Sammy's, I will go over with you."

"Can't yer go over with me to-day?" asked the persistent boy, who considered it all lost time





simply to go over there to see if it was Sponsie. He required no such evidence.

"No, I can not," replied the Doctor.

"Ner to-morrer?" quickly followed the boy.

"No, my lad," answered the Doctor, almost out of patience. Taking his portemonnaie from his pocket, he handed the boy a dollar, saying: "Please do me the favor to go over to Hoboken and see the monkey, and then, if it is as you believe, call up and see me as soon as you can. Your time is not as valuable as mine, and I can better afford to pay you a dollar than to go over myself."

The boy took the dollar with a doleful look, caused by his inability to convince the Doctor that he knew positively what he asserted, and deposited it in a ragged leather wallet which hardly had a place to hold it, and from which a few pennies dropped out as it was opened. While stowing the money away he muttered to himself in a tone inaudible to the doctor, "I know it's Sponsie, be-





fore I go ; but," raising his voice, after a moment's pause, "jist as you say, Mister Hubbs."

As the Doctor drove away, musing upon the peculiar character of the plumber's boy, for self-assurance and persistence, his countenance was radiant with good-humor. This happy condition of mind was doubtless heightened by the hope that the perplexing question which would now and then irresistibly arise as to the identity of the monkey brought by the backwoodsman might possibly be solved by the discovery of one which should prove to be, beyond any question, Sponsie himself.

Returning home, the Doctor was met on the steps by Sammy's impatient and inquiring face. He told the boy what the plumber's apprentice had said, and that he had commissioned him to investigate the matter and report. Stepping into the office for his medicine case, he again drove away, leaving Sammy to his reflections.

It is hardly necessary to inform my young read





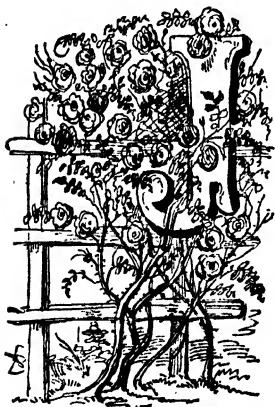
ers that Sammy had become so much attached to his little invalid monkey, that he almost dreaded the idea that anything could transpire to show that he was not really Sponsie. From various circumstances, some of which were quite convincing, he had pretty nearly settled into the conclusion that the little fellow was the identical one that had been his constant companion before the kite tragedy; and as he bade him good-night at the close of the day, he looked pathetically into the sad face of the invalid, and silently promised that if there was a mistake, and the original Sponsie should turn up, both of the monkeys should share his impartial, patient and tender guardianship.





CHAPTER VIII.

**THE ADVENT OF JUNE—DOCTOR WINKLES' CALL
—HIS SURPRISE AT SAMMY'S PROFICIENCY AND
DISGUST OF LOUIS NAPOLEON'S STUPIDITY—
THE MYSTERIOUS AND PROTRACTED ABSENCE
OF DOCTOR HUBBS—THE ALARM OF THE FAM-
ILY—MRS. HUBBS DISTRACTED WITH ANXIETY.**



UNE, lovely June, silently came in last night. She did not enter with that regal ostentation one pictured in imagination. No rainbow arched the heavens for her triumphant entrance. We are so accustomed to witness the pomp with which great men—so called—are received, we were expecting that Nature—simple Mother Nature—was going to make a ninny of her





self. We forget that such ostentatious displays are borrowed from a fading era of petty tyrants, who are flattered by the fulsome performances of obsequious subjects. Humanity is destined to outgrow these silly exhibitions of royal tomfoolery, and will some day pay only silent tribute to that greatness which instinctively shrinks from the vulgar public festivities conjured, in the undeveloped mind, mistakenly in its honor.

June—the rose-queen—came as silently and meekly as the lowly Nazarene, the harbinger of love; she kissed the swelling buds, and they opened to welcome her; they mingled their fragrance with her warm breath. She sits among them as a mother or a sister, and not in the higher seat as a monarch, before whom their blushing faces should bow. Let us sit at the feet of Dame Nature and learn a lesson in simplicity.

Sammy is stirring about pretty lively for a warm forenoon. Large beads of perspiration stand upon his dusky brow. He has been busy clearing the





cellar ; getting out piles of fine dust from the coal-bins, and putting the place in trim for the summer. After a good face-washing and a little change of clothing, he is now engaged in rubbing up the german-silver mountings about the coal-grate, for the occasional fires of spring will be no longer needed and the blower will not probably be removed before autumn.

Hark ! there is a light pull at the door-knob, and a shaking of the bell-wire, and no report from the bell. " That's a sick one," muttered Sammy, as he dropped everything to open the door. " Not much muscle there," continued he, musing to himself as he stepped towards the door. But the boy was mistaken. On a warm day, strong muscle does not always work energetically.

" Is Doctor Hubbs in, Sammy ?" inquired Doctor Winkles.

" No, sir, he's gone to Hoboken," replied the boy, quite astonished to see a stalwart man instead of a pale woman on the steps.





"Gone to Hoboken!" repeated Dr. Winkles, with emphasis. "Has he patients over there?"

"No sir; no patients," answered the boy; "but he thinks he has at last got track of our lost Sponsie, and has gone over to Hoboken to see."

"Why," asked Doctor Winkles, with surprise, "what monkey is that perched on top of the hat-rack there?"

"That? oh, that's a poor sick one that was brought here by a man from the country, and we thought it was Sponsie."

Doctor Winkles had not seen any of the Hubbs family for several weeks, and was entirely ignorant of the fact that Sponsie had been lost. Walking leisurely into the office room, he sat down with the boy to hear all the particulars. Sammy told him about the sad kite affair, and narrated the interesting incident of the impromptu monkey show, and the visit of the backwoodsman. After stating all these facts, Sammy proceeded as follows:

"A few days ago 'a plumber's helper, who hap-





pened to be with the boys flying kites the day Sponsie was carried away, told us of a monkey in Hoboken which was found on the flag-pole on top of a German's house, just after Sponsie was lost. Doctor Hubbs sent him over there to see about it, and last night he came back, assuring us that he had certainly found Sponsie.

"I felt," continued Sammy, "just as if I could not wait a minute, and hoped that the Doctor would send me right over there to see. But he hardly ever gets very much excited, you know, about anything, so he told me to wait until this morning, when either he or I would go over. I hoped that I should go. But at about nine o'clock, "Old Jude" was driven up to the door, and the Doctor started off by himself, telling me that he would go to Macdougall's shop and take in the boy, and drive to the ferry. I feel so impatient that I can hardly wait till he gets back."

"Then you expect him to return very soon," said Doctor Winkles.





"I hope so," responded Sammy, with a sigh, "but he may stop to see patients on the way, and if he does he will not return till dinner-time."

"I think I will wait a little while," remarked Doctor Winkles. "Perhaps he will hurry back, knowing your impatience; and I feel quite interested myself to learn the result. How did it happen, Sammy," asked the Doctor, "that you thought that poor little weak creature might be Sponsie?"

Sammy, in reply to this question, told him the whole story of the æronauts, and the conclusion of the Doctor that perhaps the monkey's circulation had been seriously affected by the air of the upper regions.

Doctor Winkles listened with the closest attention to the intelligible narrative of the boy, and when he had finished, the doctor exclaimed:

"Oh dear, dear! what an ignoramus my Louis Napoleon is; he could no more give an account of so simple a thing as the flight of a Shanghai

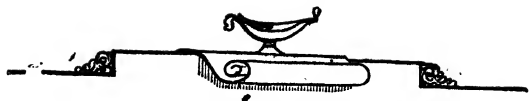




pullet over a fence, than he could walk from here to Chicago on the ends of his fingers. I judge, Sammy," said he, "that you have been studying the circulation of the blood, haven't you?"

"Yes, sir," quickly replied Sammy, who had enough of human nature in him to always feel great delight whenever Doctor Winkles contrasted his aptness with Louis Napoleon's stupidity. "I have been learning all about the arterial system, which circulates the red, nutritious blood; about the capillary system in which this blood is poured, and about the venous system which carries the poor blood back to the lungs to get reloaded with oxygen. I have, too, been learning about how the nutritious matter from the food gets into the circulation to enrich it." As Sammy was thus relieving himself, he nervously wiggled and twisted in his chair, keeping both his hands and feet in motion under the excitement of mind caused by the fear that he might make a mistake in telling what he was aching to get off,*that he might show





the Doctor what he had learned since he last saw him.

“Dear! Dear!! Sammy, how fast you are getting along, to be sure. It will not be long before I shall see that sign out there altered to read—Doctors Hubbs and Tubbs! What a fool my Louis Napoleon is, I declare! Circulation! What does he know about it? If I should ask him anything concerning it, he would open his eyes and mouth wide enough to tell me all that you have, Sammy, and all that would come out of his big throat would be, ‘dunno sar!’ followed by a laugh which would pass for a cross between real laughter and whooping-cough! If I should ask him where the life-giving elements entered to sustain his body, he would lazily open his huge jaws and point down his throat!”

“Well,” said Sammy, with a triumphant twinkle in his eye, “he wouldn’t be far from right. You know, Doctor Winkles, that they must all go that way first, and that both the





food which makes the substance of the blood and the air that vitalizes it, pass for a short distance through the same channel—down the throat. So, if Louis should point that way,



DR. WINKLES TALKING WITH SAMMY.

he would not only show you the direction his food had taken while eating, but also the path of the air as it goes to the lungs. And you know, too, that air is just as necessary as food."





"You are right, Sammy; I declare you are right," exclaimed Doctor Winkles, surprised at the correctness and discrimination of the boy. After a moment's thought, he decided he would give him a puzzler, and see if he could work it out. "I see, Sammy, that you know a great deal about the circulation; seem to understand how the nourishing blood goes out through the arteries and replaces the particles of flesh, muscle, and bone, which are constantly dying out in the body, and how it returns through the veins to obtain the nutriment from the stomach and the oxygen of the lungs. Does the venous or poor blood, as it ascends in the veins from the lower parts of the body, go directly to the lungs?"

"No, sir," promptly responded the boy; "it returns to the heart."

"Returns to the heart?" repeated Doctor Winkles with a look of feigned surprise. "When, pray, does it visit the lungs? Does not the heart





send it right out again as soon as it reaches this organ ? ”

“ Yes,” said Sammy, exhibiting his mother-wit, and his white teeth at the same time, while a smile encircled his lips. “ It sends it right out to take an airing ! ”

Doctor Winkles laughed heartily at this novel but correct reply, while the thought passed through his mind that Sammy would not get caught this time. “ I do not quite understand you, Sammy,” finally said the doctor ; “ will you please explain yourself ? ”

“ Well, you know, Doctor Winkles, just as well or better than I do, and you are only questioning me to see how much I know about it,” said Sammy. “ But,” continued the boy, “ I will answer you, and if I should make any mistake you will please correct me.”

“ Depend upon it, my boy, I will,” replied Doctor Winkles.

Sammy, remembering how Doctor Winkles once



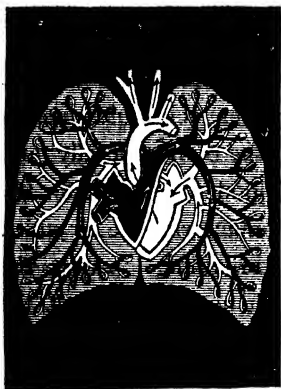


put him to blush, by asking a question about the bones and muscles which he could not answer, naturally felt some uneasiness lest the Doctor should catch him in a blunder, or again surprise him with a question about something he had not yet studied.

“There are two sets of blood-tubes,” said Sammy. “One set of arteries, veins and capillaries circulates the blood in the body generally, and another set circulates the blood in the lungs for the purpose of bringing it in contact with the air which is inhaled in the act of breathing. After the blood leaves the left auricle and ventricle of the heart to carry its rebuilding material out through the arteries and capillaries of the various parts of the body, it returns by way of the veins to the right auricle of the heart. It is then propelled by the right ventricle through what is called the pulmonary artery into the capillaries of the lungs. Here it changes its dark color to a rich red hue, because it comes so close to the air in the air-cells



of the lungs. Then it is taken up by the pulmonary veins and carried back to the heart, where it enters the left auricle, from which through the left ventricle it is again sent out through the general circulation to all parts of the body."



PULMONARY CIRCULATION. then said: "You told me a little while ago that the arteries carried out the rich nutritious blood, and the veins took back the dark innutritious blood. Now you say the pulmonary artery takes out dark blood and the pulmonary veins return to the heart





that rich red-looking blood. How is that, Sammy?"

The boy's dark skin reddened, and his head dropped as if in deep study. His first thoughts, however, were not devoted to an attempt to extricate himself from the embarrassing dilemma. He was only thinking how he wished Doctor Winkles had felt in a hurry and left before putting this inquiry, which had thrown him into a state of terrible perplexity. After the momentary flurry of his mind had subsided, however, and he gave his attention to the question, his countenance began to brighten a little.

"I guess you can tell me yet," said the Doctor, breaking the silence in this way to give the boy a little encouragement, for he saw by his expression that he was on the point of rallying.

"Well," replied Sammy, "I never thought of that before. But it is so. In what is called the general circulation the arteries do carry out to various parts of the body the rich red blood, and





the veins do take back to the heart the poor dark blood ; but, in what is called the pulmonary circulation, the pulmonary artery takes from the right side of the heart to the lungs the dark poor blood, and the pulmonary veins return from the lungs to the heart the rich red blood, which has been exposed to the vitalizing influences of the air it has met in them."

"Sammy, you are a smart boy and no mistake," exclaimed Doctor Winkles, "you are entirely right in both statements, because one of them referred to the general and the other to the pulmonary circulation. There are," he continued, "two complete rounds of circulation—the general and the pulmonary. And it is true, that while the arteries of the general circulation carry out from the heart the rich red blood, the arteries of the pulmonary circulation carry from the heart the dark exhausted blood. The reason of this is, that the arteries of the general circulation are engaged in visiting and rebuilding the various atoms of the body, and the





arteries of the pulmonary system are engaged in visiting the capillaries of the lungs and loading up the blood with the vital elements which it receives from the air which enters the lungs in breathing."

As Sammy raised his eyes with a very perceptible expression of relief, he observed that Doctor Winkles was looking at his watch. "What time is it, please, Doctor," asked the boy.

"I declare for it! it is one o'clock," he exclaimed.

"That is the Doctor's dinner-hour," said Sammy, "and unless he is detained by some patient, he will be here in a moment;" and as he was saying this the dinner-bell rang.

In a moment more there was a knock at the door, and Sammy quickly left his chair to open it.

"Ah! good-morning, Doctor Winkles," said Mrs. Hubbs. "What have you done with my husband?"

"I should like to know," returned Doctor Win-





kles with a bland smile, "what you and Sammy have done with him? I see there is a skeleton in the closet," added the Doctor with a laugh, pointing to the closet door, which was sufficiently ajar



MRS. HUBBS EXCHANGING JOKES WITH DOCTOR WINKLES.
to show the bones upon which Sammy had been studying. "I trust that is not his!"

"I guess not," replied Mrs. Hubbs, laughing heartily. "We wives, you know, are after the purses rather than the bones of our husbands!"





Here Mrs. Hubbs settled down into an easy-chair and kept up a lively conversation with the visitor until the clock struck two. Again looking at his watch to see if it confirmed the announcement of the clock, he arose and said that he must not stop another minute.

Mrs. Hubbs remarked that it was very unusual for the Doctor to be absent at dinner-time unless somebody was very sick ; asked Doctor Winkles if he would not dine with her, and, as he was in too great haste to accept the invitation, she went down alone to the dining-room, as Doctor Winkles went out.

I will not undertake here to repeat the exclamations of surprise made by the family as the clock struck three—four—five, and so on up to ten o'clock at night, without one word of any kind from the Doctor.

Mrs. Hubbs became greatly alarmed, because, she said, "if the Doctor was detained at the bedside of a patient, he might send me word by somebody."





Sammy was dispatched to the shop of Mr. Macdougall the plumber, to see if the helper who went with the Doctor had returned. The boy, finding the shop closed, hastened back to Mrs. Hubbs for another commission, if he should find that Doctor Hubbs was still absent.

"Look in the Directory for Macdougall," said Mrs. Hubbs frantically, when Sammy returned. The City Directory was immediately brought forward, and all the Macs hastily and nervously looked over. Too hastily, indeed, for they did not find anybody by that name who was a plumber. While they were looking, the clock struck measuredly, and, to their ears, solemnly, the hour of eleven.

"*What—shall—we—do?*" asked Mrs. Hubbs, with an emphasis on each word, and in painful sadness of tone, as she stood in the office room, surrounded by Bridget, Bidy, and Sammy.

"Faith an' here's Macdougall the plumber," said Bidy, who could read very well, and had





continued to look over the names in the Directory.

All sprang to see, and were instantly looking anxiously over Biddy's shoulders.

"Arrah! bad luck to it! and I have lost the place!" said the girl, as they impatiently asked her to point it out. "Be me sowl I did hev it, to ba shure I did!"

"There—there it is," exclaimed Sammy, pointing to the place, and all eyes were in an instant fixed upon it.



THE SEARCH FOR MACDOUGAL'S
NAME IN THE DIRECTORY.

"Hunter's Point! he lives at Hunter's Point, and no street nor number is given," said Mrs. Hubbs in a tone of despair, as the tears started from her eyes.

Vain would be an attempt to depict the con-





sternation of the family at the Doctor's absence as the pointers of the clock kept steadily moving till they reached the hour of two. Mrs. Hubbs believed that if her husband were alive, he would have sent some message to her that would account for his delay in reaching home. "The papers," she said, "were so full of accounts of robberies and murders, she felt sure that something had happened to him."

Finally Sammy was sent to the house of Doctor Winkles, and he was aroused from his slumbers with the request that he would call around at once to Doctor Hubbs' residence. Dr. Winkles was greatly surprised that Doctor Hubbs should thus absent himself from his family without relieving their anxiety by a messenger, which can always be found in a city, ready to run anywhere for a dime or two. He and Sammy talked it over as they went on their way, and Doctor Winkles urged Sammy to say nothing which would increase in the least Mrs. Hubbs' alarm.





As they drew near the house the bright light from the hall was seen gleaming across the street, for Mrs. Hubbs was standing in the doorway, waiting impatiently the arrival of Doctor Winkles.

"What do you suppose all this means?" cried Mrs. Hubbs, wringing her hands with emotion.

"Oh!" replied Doctor Winkles soothingly, "he has doubtless sent some messenger who is just about as stupid as my Louis Napoleon, and he has not found you. It would be your Doctor's style to pay the boy in advance for doing the errand, and then, if the fellow had much difficulty in finding the number, he would go home and go to bed. I feel very sure that nothing has happened to the Doctor."

This suggestion of Doctor Winkles, followed with his calm expression of confidence as to the personal safety of Doctor Hubbs, greatly quieted the anxious wife, for before Doctor Winkles came she acted as wildly as a crazy person.

As soon as Mrs. Hubbs became in a measure





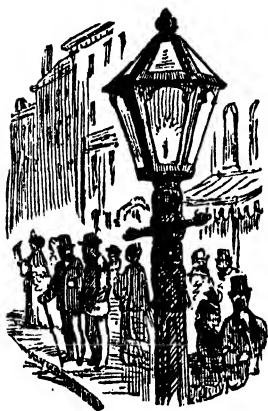
tranquil, Doctor Winkles started off with Sammy to the various police stations to give notice of the Doctor's mysterious absence, and the two servant girls, who were almost as wild as Mrs. Hubbs, were persuaded to go to bed; for their weeping and loud talking only increased the nervousness of the wretched wife. Mrs. Hubbs vibrated for the balance of the night between the open window and door, and a lounge upon which she would sink in despair when almost paralyzed with grief and exhaustion.





CHAPTER IX.

CONTINUED ANXIETY AND GLOOM AT THE HOME OF THE HUBBS—THE MOTHER OF THE HELPER CALLS TO INQUIRE AFTER HER BOY—THE TERRIBLE SUSPENSE OF MRS. HUBBS AND THE BOY'S MOTHER—THE RETURN OF THE DOCTOR'S PARTY, AND THE JOY OF THE FAMILY—THE STRANGE STORY OF HIS ADVENTURES.



IN the great Babel of New York—the metropolis of what is called, erroneously perhaps, the New World—there is but one hour in twenty-four when anything like comparative quiet prevails. This is between two and three o'clock in the morning. This hour has not the dead-like stillness of midnight in the farm-house





of the country, for now and then the sharp tap of the policeman's club and his measured tread break upon the ear, and the bells of the horses attached to the street-cars are heard in the distance. But during this hour there are intervals of absolute silence, and it is during these that an excited imagination, taking possession of the auditory and optic nerves, will hear sounds and see spectres which fail to impress the awakened ear or eye of one who, free from all mental unrest, turns lazily in his couch for another nap.

It is during intervals of perfect quiet like these that the unhappy wife of the absent physician hears imaginary steps at the door uninterrupted by other sounds than those caused by the trembling motions of her nervously agitated body. As she listens they grow louder and more real, until in imagination she sees the lifeless body of her husband borne upon the arms of four strong men passing over the open threshold. She finally calls to her aid her little remaining strength, and, step-





ping boldly to the door, dispels from her hearing and vision the hallucination which has taken possession of her afflicted soul. Sinking again and again upon the lounge, the dreaded nightmare creeps over her and pictures in her feverish brain fresh horrors, which she as often throws off by arousing and bravely confronting the apparition.

By and by the lights of the room grow less luminous. The greater light ascending in the eastern horizon causes the burning gas-jets of the houses and streets to almost fade from view. The afflicted woman knows it is not faintness which is stealing over her, for the objects of the room grow more distinct, and the din of the early market-men is evidence to her ear that the one hour of a New York night is passed.

Listen! There is some one ascending the steps. It is not a weird sound as when the imagination is playing the part of a visionary creator. Six distinct hurrying steps; then, a momentary pause





as if hesitating what to do next. Now, there is a rustling of clothing followed by a nervous pull at the bell. Mrs. Hubbs flies to the door.

"Is Mister Hubbs at home?" asked a middle-aged, plainly dressed woman, with great red sad eyes.

"No, my dear woman," responded the wife, sobbing violently. "I do not know where he is. I fear I shall never see him alive." Saying this, she hastened back to the place where she had been reclining, and sank down overcome with emotion.

The woman, although uninvited, followed her in, exclaiming, as she was about seating herself in a chair, "Oh, my boy, my poor boy!"

"Why do you call him your boy, your poor boy?" demanded Mrs. Hubbs, who quickly turned her face towards the woman and resolutely wiped the tears from her eyes. "Why," she impatiently demanded, "do you call him your poor boy?"

For a moment the woman was too embarrassed





to reply, and Mrs. Hubbs was on the point of repeating that question or asking another, when the former answered meekly :

"Please, ma'm, it is not your husband but my James that I call my poor—" and here her sobs interrupted her utterance.

"And are you the mother of the plumber's boy?" asked Mrs. Hubbs, who suddenly recollected how much they endeavored the night before to obtain some trace of him.

"Yes, ma'm, I am," sobbed the woman, "and you don't know where he is?" she added, in an interrogatory tone.

Mrs. Hubbs could only shake her head in the negative ; and both herself and the strange woman were so overwhelmed with grief that further conversation for the time was impossible.

Not long after the entrance of the woman Doctor Winkles came in.

"No news from the Doctor yet, Mrs. Hubbs?" asked he.





"Not a word," returned she, assuming as much of an expression of composure as she was able to command. "Have you nothing to tell me?"

"Nothing," he replied, "excepting that Sammy



WHY DO YOU CALL HIM YOUR BOY?

and I have been to the station-houses, and the chief of police has promised to telegraph at eight o'clock to the police of this and surrounding cities if we will send him word to do so. Sammy has gone to the plumber's to await the opening





of the shop so as to find out as early as possible the whereabouts of the plumber's apprentice who went with the Doctor."

"This is the mother of the young man," said Mrs. Hubbs, pointing to the place where the woman was sitting..

"And have you heard nothing from your son since yesterday forenoon, my poor woman?" asked Doctor Winkles with a look of surprise.

"Not the first word," answered the woman. "When he left the house at the usual hour in the morning he said he was going over to Hoboken with Doctor Hubbs to show him where to find a monkey he had lost. The boy is always so steady, I know something must have happened to him. He never gets drunk or goes with bad boys. Something—oh, something terrible has happened, I know," added the woman as she again burst into tears.

"Then he could not do such a thing as to harm in any way my husband, could he?" asked Mrs.





Hubbs, a little relieved from the suspicion that the boy might be at the bottom of the whole trouble.

"Bless you, no!" exclaimed the woman. "My boy do anybody any harm? I guess he wouldn't! he is always doing something for somebody, and will run his legs off to do a favor for folks he never see afore."

As the woman was saying this, Sammy arrived, and he saw at a glance that nothing had been heard. "That helper," he said, "lives over in South Brooklyn, and he has not yet got to the shop. Shall I go over there?"

"This is his mother," said Mrs. Hubbs and Doctor Winkles, both speaking at once.

The boy had in his hand the morning papers, and these were eagerly seized and examined with a special thoroughness where the heads, "Crimes and Casualties" and "Telegraphic Items" were given. Nothing could be found in them to throw the least light upon the mysterious disappearance of the Doctor and the plumber's boy.





It was now a little past eight o'clock, and the gaslights of the hall and office, which had been neglected in the excitement and confusion of the morning, were still dimly burning. Sammy mounted the step-ladder and extinguished them, and Doctor Winkles and Mrs. Hubbs withdrew to the parlor to talk matters over and decide as to what should be done. It was determined, after serious deliberation, to try and endure the suspense if necessary till the hour of ten o'clock, and then, if nothing should be heard of the missing Doctor, that telegrams should be speeded over the wires in every direction. Publicity was undesirable unless absolutely necessary. As they emerged from the parlor, Doctor Winkles left, to return at the hour designated, as he had professional calls which could not be neglected.

A little after nine o'clock Mrs. Hubbs and the mother of the boy were sitting in the office awaiting with painful anxiety the return of the absent ones, or the announcement by the faithful clock of





the hour of ten, when something decided was to be done.

"I see," exclaimed Sammy, running up the steps, "I see something coming up Broadway that looks like old Jude."

All rushed to the door, and the girls—Biddy and Bridget—overhearing the report, ran up the basement steps.

"Faith an' it is ould Jude!" exclaimed Biddy.

"Be me sowl I belave it aise!" quickly followed Bridget, holding her hand over her eyes to shade them from the bright sunlight reflected from the buildings opposite.

The two sorrowing women upon the front steps had shed too many tears to be able to distinguish objects distinctly, but the exclamations of the Irish girls and the assurances of Sammy awakened hope that at last their suspense was to be relieved by hearing something good or bad from the missing ones. Before the horse came near enough to determine with certainty whether it was or not "old





Jude," a large load of barrels turned in from a side street, obscuring the view. For some moments the animal could not be seen, but by and by she passed the loaded vehicle, and all of the Doctor's household exclaimed at once, "That is 'old Jude,' and there is the Doctor!" "And there is my son!" shouted the poor woman. "And there is Sponsie!" cried out Sammy at the top of his voice, jumping up and down, half-mad with delight.

In a moment more, had you been in the office room, you would have witnessed a spectacle which the artist has tried to reproduce here. Pen, pencil or brush, are unable to present the real picture, for however faithfully the artist may represent the exciting meeting in its visual aspects, no one but the Benign Father who sees all things could observe the emotions which thrilled the breasts of Mrs. Hubbs, the poor woman, and the delighted Sammy. Even the servants were boisterous with joy, and the ever-passing crowds on the walk gathered about the door and windows to





look in. It required the interposition of the police to clear the steps of the people, simply attracted by curiosity, some wondering at the excitement and inquiring the cause ; and others—the younger ones—fascinated with the fantastic manœuvres of Sponsie, who seemed as happy in his restoration to his home and master as ever a lost dog was after a protracted absence. Next to the joy of seeing the Doctor and the plumber's boy return, was the curiosity of all to know what had been the occasion of their mysterious and prolonged absence. All wanted to know at once.

"Didn't you receive a note from me?" inquired the Doctor, with the greatest surprise.

"Not a line," replied Mrs. Hubbs. "We have been almost crazy about you."

"And no one has been here to tell you where we were?" interrogated the Doctor, with a look of inexpressible astonishment.

"Not a soul!" said Mrs. Hubbs, with emphasis. "I tell you we have been up all night,





THE RETURN OF THE DOCTOR AND HIS PARTY.



and Doctor Winkles and Sammy have been everywhere to see if they could obtain any tidings concerning you whatever. Here is Mrs. Wog-lome, James' mother. She has been here since five o'clock, in the greatest distress as to the safety of James."

"Worse and worse!" exclaimed the Doctor to James; and just at this moment Doctor Winkles re-entered.

"Thank Providence, you are home again!" ejaculated Doctor Winkles, shaking Doctor Hubbs warmly with one hand while congratulating Mrs. Hubbs with the other.

"I am surprised that that messenger did not come here," said Doctor Hubbs. "I paid the man the liberal sum of three dollars to deliver a note explaining the cause of our detention, and calling for aid."

"That troublesome little elf over there," continued Doctor Hubbs, pointing to Sponsie, "was the entire cause of the difficulties into which James





and I were innocently precipitated. We have been arrested and have spent a night in the lock-up!" added the Doctor with a grotesque expression playing upon his features.

"Been locked up!" three or four voices exclaimed all together.

"Yes, Jimmy and I have had a taste of prison-life in one of the cells of the Hoboken police station-house.

"I will tell you in as few words as I can," continued Doctor Hubbs, "the whole story. We found the German's residence, in the basement of which the proprietor had a Lager Bier Saloon. On entering the place, Sponsie, who was on a pile of kegs in one corner, made a spring for me, at once recognizing me, and appearing perfectly wild with delight. The old German approached us, remarking in broken English that the monkey and I seemed to be pretty well acquainted. After I told him how the monkey was lost, he informed me that the very next morning after the kite bore





Sponsie away his attention was called to a group of boys in the street looking up at the top of his flag-pole, and hooting and throwing stones, which fell heavily upon the roof and rolled noisily down. He hastily put on his clothes, and going out, dispersed the boys, when he found, on looking up, that a monkey was clinging to one of the tackles used in raising the flag. He re-entered the house and ascended four flights of stairs to the roof, and the monkey was then forty feet above his head. With a little coaxing he succeeded in inducing the affrighted animal to descend the flag-pole, when he found a string fastened about his waist under his shoulders. The longest loose end looked frayed as if it had been gnawed off by the animal's teeth. From the time he found the creature in this position until James called over to see him, it was an unfathomable mystery in the old German's mind as to how the monkey ever got there, for the house is two stories higher than any of the surrounding buildings, and the outer walls are of





smooth Philadelphia brick. In view of all the circumstances he was entirely satisfied that I was the rightful owner of Sponsie.

"What was the most remarkable of all," con-



THE OLD GERMAN WHO DOES NOT LIKE MONKEYS.

tinued the Doctor, laughing, "he would accept no reward, nothing except what he paid for advertising the monkey; saying that he was only too glad to get rid of the troublesome fellow. The old German said with great earnestness, and almost anger,





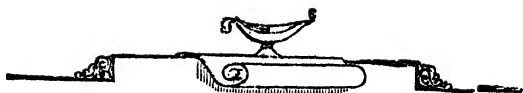
"I vood kilt ze leetel scamp mit dis stick,' shaking a large cane, 'if he shtay round here mootch longer yet.'"

All joined with the Doctor in a good hearty laugh over the German's disgust at the pranks of Sponsie, presenting a scene in striking contrast with the one an hour before in which only anxious and weeping faces were visible.

"Now," said Mrs. Hubbs, with a manifest air of impatience, "do tell us how you and James got into the hands of the police."

"Well, I will tell you about that now," replied the Doctor. "We had proceeded to the ferry, where I got out, leaving old Jude with James, and went myself to the saloon, Sponsie, of course, following me closely, much to the amusement of the passengers, especially the children. I seated myself next to a rather coarse, red-faced man, who wore a great deal of jewelry. Before the boat started this man turned around, his eyes flashing with anger, and charged me with stealing his watch."





"Stealing his watch!" exclaimed Mrs. Hubbs and Doctor Winkles at the same time, and all looked up at Doctor Hubbs with a comic expression of surprise, while James seemed greatly amused at the scene here presented by the exclamation and upturned faces.

"Yes!" ejaculated James with a laugh, greatly relishing the excitement. "We wuz arrested for stealing the old covey's watch, we wuz!"

"In a little less than no time," continued the Doctor, after James' interruption, "I was hustled out of the saloon by this and another man, both of whom were stronger than I, and in a moment more I was in the hands of one of the policemen usually standing about the ferry gates. James, seeing that I was in trouble, managed to get old Jude turned around and off the ferry-boat before it started. When it was found that he was with me he was at once arrested as an accomplice."

"Yes," interrupted James, "they called me 'a





access'ry,' and lots of other names, and put us all into the lockup together, they did !”

“What did they do with Sponsie and old Jude ?” asked Sammy.

“Oh,” replied the plumber’s boy, “old Jude they took off somewheres ; but they locked the monkey into the same hole with me and Mister Hubbs.”

As soon as the boy was through speaking, the Doctor resumed : “ It seemed useless to appeal to the officers at the police station. We were roughly taken downstairs to a cell, to await examination. This, I was assured, greatly to my consternation, could not take place till morning. I was graciously granted some ink, pens and paper, with which I wrote a note directing you who to call upon to come to my assistance, and despatched a messenger with it. I thought it very singular that no one of my friends came to my relief, but never once suspected that perhaps the messenger had failed to discharge his duty. James slept a little, but I did not close my eyes. Picture to your-





selves my astonishment, at about midnight, Sponsie becoming tired of bounding about the cell, and dropping off to sleep, when that watch rolled out of his mouth upon the floor, making sufficient noise to awaken James, who was sleeping but lightly! Both of us sprang to our feet and instantly called to the watchman to come to our door. I told him that I could now explain the mysterious affair, and after telling him about it, my statement being confirmed by James' testimony, given with an honest look of surprise, I begged he would take the watch and discharge us. But our explanations and entreaties were of no avail. As soon as we appeared before the police judge, who was an intelligent and shrewd-looking man, early this morning we were promptly discharged. This Justice had the discrimination to see that both James and I bore honest faces, and that Sponsie was without question the little thief who had unwittingly got us into this scrape."





“ Did Sponsie really steal the watch ? ” inquired Sammy.

“ Oh yes, there is no doubt about that,” replied the Doctor. “ He was on and off my lap, jostling



THE LAUGHABLE SCENE IN COURT.

the man of whose watch he in some way got possession, and, placing it in his mouth, no one, of course, knew what had become of it. The man looked at his watch just as I took my seat by his side, and he thought there was no question but





that I was the robber ; for, in a moment more, he missed it. He appeared at the examination against us, but seemed fully satisfied that my statement was true. The people who crowded the court-room roared with laughter at our expense when I related the story. Their merriment was further increased in another freak of Sponsie's. Just as I concluded my statement, he sprang from my arms, snatched the glasses from the Judge's nose, and, putting them upon his own, assumed a grave attitude in a vacant chair by the side of the Judge. I thought for a moment the spectators would go into fits from excessive merriment ; the walls of the room resounded with screams of laughter, shouting and stamping, till the Judge brought down his gavel five or six times, accompanied with an expression as dignified as possible under the circumstances, and a loud call of. ' Order in court ! ' "

At the conclusion of the Doctor's account of his adventures in Hoboken, and a general conversation





by those present upon the strange episode, Dr. Winkles left, soon followed by Mrs. Woglome and her son James, the plumber's boy.

After all had gone, the Doctor gave Mrs. Hubbs something to quiet her excitement, and prevailed upon her to retire for rest ; and as Sammy had also been up all night, he went to his room for sleep, after putting Sponsie in charge of Bridget. The invalid monkey had been fed by Biddy, and was sleeping in a chair in Sammy's room. We will now leave them all after so much anxiety and excitement for mental and physical recuperation, and the re-establishment of the usual professional, domestic, and business routine of the well-ordered Doctor's family.





CHAPTER X.

THE CONDITION OF THE HUBBS FAMILY—SAMMY PROPOSES TO KEEP THE MONKEYS APART—THE LACTEALS AND VILLI—SAMMY'S IDEA OF VILLAINS AND VILLI—THE BOY SUDDENLY CALLED HOME.



Y young readers will not feel surprised when I tell them that a week's time has been almost entirely given to relaxation in the Hubbs family after the fright and excitement occasioned by the mysterious disappearance of the Doctor; as nearly so, indeed, as circumstances would admit. Nor will it appear strange when I state the fact, that Sponsie was made sick by the excess of joy which whelmed him on finding him-





self once more in the genial atmosphere of the Doctor's household. For several days the Doctor was utterly unfitted for his professional duties, and was compelled to ask Doctor Winkles to attend to the calls of his patients. Mrs. Hubbs was confined to her bed with a nervous fever. Sammy had felt as depressed as a patriotic boy the day after the Fourth of July. The sick monkey in the attic had been, indeed, about the most comfortable of anybody.

By the by, Sammy had determined, if possible, to keep the monkeys separated, for he desired to show them impartial attention. He knew that when ~~that~~ peculiar emotion—jealousy—was so common in imperfectly developed human beings, it must, in the natural order of things, exist among those grotesque imitations of humanity lower down in the scale of creation, to which his two otherwise amiable pets belonged. Thus far he had wonderfully succeeded in his efforts to carry out this wise resolution; consequently,





Sponsie's illness could in nowise be ascribed to any mental disquietude produced by his young master's attention to another distinguished individual of the same species.

After all the members of the household gained their accustomed health and cheerfulness, excepting Mrs. Hubbs, who still remained so ill as not to leave her room, affairs on the office floor began to assume their former activity. At this very moment, for instance, the Doctor and Sammy are engaged in conversation. We will draw near and listen. The latter is telling about how Dr. Winkles tried to corner him with questions regarding the general and pulmonary circulation, and concludes by saying: "I am mighty glad that he asked me no more about that subject of absorption, for you know you have not told me all about that yet."

"It seems to me I did, Sammy," answered the Doctor; "although I almost forget where we did leave off. What were we talking about last, my boy?"





"The lymphatics and lacteals," quickly responded Sammy. "You said that the lacteals, which are a part of the lymphatic system, only took up the fatty matters ; and, although I hardly know what question I want to ask you, I wish you to tell me some more about how the food reaches the circulation."

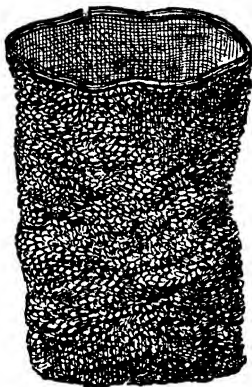
"Well, suppose I should tell you that the lacteals terminate in little projections, called villi, from the lining of the small intestines ; that these villi are of all shapes, some being pointed, others blunt, and still others quite flat ; that they are so near together that they are often joined on the walls of the intestines ; that they are so numerous and small that every square inch of the surface of the small intestines has more than ten thousand of them ; that they are indeed so small you would need a microscope to show you what they look like ; and—"

"Could you," interrupted Sammy, impatient to understand just what the villi are, "call those little





things mouths? Are they not little mouths in reality, put there to suck up the food?"



A PIECE OF THE INTESTINE
TURNED INSIDE OUT SO AS TO
SHOW THE VILLI AS THEY
APPEAR UNDER THE MICRO-
SCOPE.

"Yes, Sammy," resumed the Doctor, "and I was just about to tell you how they are constructed," taking out his pencil and making some marks during the momentary silence. "Now, here is one as it appears under the microscope," showing the boy the sketch. "The skin or covering of the villus is called the epithelium."

"I thought you called them villi instead of villus," again interrupted Sammy.

"So I did," said the Doctor, "in speaking of several, because villi means more than one of these





little projections But it is proper to call one of them a villus, as this term means but one when speaking of these little absorbent vessels. I might have said the epithelium of one of the villi, and then you would have understood me better."

"Never mind, now," replied Sammy. "Use whichever word suits you best. I have known ever so long what a villain meant, but I never before heard of villus or villi. Some of our human villains the boys call suckers, and I guess the villi of the small intestines might be called by the same name.

Once more the Doctor felt not a little shocked at Sammy for bringing in the vulgar terms of the street, and told him that he might associate these ideas in his mind if it would enable him better to remember the purposes of the villi, but that he did not care to have him introduce such expressions into their conversation.

"But aren't villains around picking up all they can get, no matter where it comes from?" asked





Sammy with much earnestness ; " and aren't these villi picking up all they can get from whatever comes in contact with them ; and if so, why isn't it proper to call both the villains in the street and the villi in the intestines simply gangs of suckers ? "

" Well," replied the Doctor, laughing heartily at Sammy's invincible argument, " I suppose the term would not sound so badly if we had not so often heard it from vulgar tongues. We do speak of suckers in polite language in some cases ; such, for instance, as when talking of the little delicate roots which run out in all directions for nourishment with which to supply the tree with the materials for growth, and we think nothing about it."

" And it seems to me that these villi are very much like them," broke in Sammy, " the suckers of roots take up what is necessary to keep trees alive, and these villi take up what is necessary to keep us alive."

" You seem to strike right every time," answered the Doctor, greatly delighted to observe how





"THESE WERE THE CHAPS THAT SAMMY THOUGHT OF."



readily the correct idea took lodgment in the boy's mind, "and if you will omit the term in speaking of human vampires, I will find no fault with it. But I was going to explain to you, Sammy, how the villi are constructed. Here," taking again the paper upon which he had been pencilling these little protuberances of the lining of the small intestines, "is a villus with the little absorbent vessels underlying the epithelium, and inside are the artery, vein, and network of capillaries, which are found by examining it with a microscope."

"I cannot," exclaimed Sammy, with a manifestation of impatience, "see where the lacteal is in this villus."

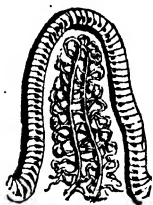
"Simply for the reason, Sammy, that it is surrounded by a capillary network," rejoined the Doctor, proceeding to pencil another illustration which would show one of the lacteals standing alone in one of the villi. "I could not easily pencil them so that you could see both in one illustration."





"But both are in one villus, are they not?" inquired Sammy.

"Yes," continued the Doctor, "what is called the lacteal radicle comes from a network of lacteal vessels at the root of the villus right down through the centre of the villus with the branches I have made. The lacteal radicle is the white line with its branches which you see in the centre."



ONE OF THE VILLI.

"Oh, I see. In one you have shown me the artery, vein, and network of capillaries, and in the other the lacteal radicle. Yes, I see," ejaculated the boy, with a new light radiating from his bright eyes as he beheld the little vessels underlying the epithelium in the one just as they did in the other. "You have made two incomplete villi to show me one perfect one. Oh, yes," he kept repeating as he looked more carefully at each, until coming to a sudden pause attended with an expression





of bewilderment which was too manifest to escape the Doctor's attention.

"But what now, Sammy? what is it you fail to understand?"

"Why, you haven't told me what a radicle is. They call Victoria Woodhull a radical; but there is certainly no similarity between this and Mrs. Woodhull, is there?"



LACTEAL RADICLE.

Again the Doctor reddened with laughter which he stroked his face to conceal, and then looking up with eyes still sparkling with humor, he told Sammy to hand him Webster's Dictionary.

"There," said he, "is the radicle which we are talking about," pointing to one page, "and there opposite is the word *radical* which you have confounded with it."

Sammy read aloud "radicle, a name given to the fibrous parts of a root that absorb the nutri-





ment from the earth. Radical, a person who advocates a radical reform, or extreme measures in reform." Then raising his eyes, he said: "This brings us back to just what we were talking about a moment ago. A lacteal radicle is, to the human system, just what the little root fibres are to the plant. Now," continued Sammy, bound if possible to comprehend all the difficult questions appertaining to the subject, "am I to understand that this lacteal radicle is the only part of the villus which takes up the food?"

"You might naturally imply that," answered the Doctor, "and so physiologists used to think," he continued. "But it has been discovered that all the little blood-vessels of a villus have mouths, and that they take up fluids, albumen, salts, etc., while the lacteal radicles seem to prefer fats. Here, again, we are brought to see how, as I told you before, the lymphatic system is a helper to the arteries, veins, and capillaries; for while the blood-vessels of the villus are taking up one kind





of food, the lymphatic system with its lacteal radicles running into the very centres of the villi are sucking up another kind. And I may further say that while the radicles of the villi are sending off all that they can gather up, to the thoracic duct, the blood-vessels of the villi are at the same time sending the savings of their active labors through small veins to a larger one, and thence to the right side of the heart, where the elements of food thus taken up meet much of that very food which it was separated from when sucked up by the villi; for the lymph and chyle are also poured into the right side of the heart after they have passed the junction of the sub-clavian and internal jugular veins."

"Meet again like old friends, eh?" exclaimed Sammy, animated for the moment sympathetically with the same sentiment which old chums experience when they meet after a long interval of separation. As the boy concluded this remark, and was about to speak further, he was obliged to fly to the door, as the door-bell had struck twice in succession.





"Your fader and mudder an all de folks am sick—all ob um, an dey wants you an Mr. Doctor Hubbs to come down dere right away now!" said a little black girl whom Sammy did not know.



THE LITTLE COLORED MESSENGER.

"What ails them?" asked Sammy excitedly, startled by such an unusual call, for this was the first time he had been summoned home on account of the sickness of his folks.

"Dunno sar," replied the girl, "my mudder





told me to come up yer, an tell Sammy Tubbs to come down dar right 'way 'mejetly, an' fetch de Doctor-man 'long too, cause dey an bery sick—all ob um, your brudder and ev'rybody."

The Doctor, overhearing a part of the conversation, walked towards the door just as the child was descending the steps.

"What is the trouble, my little girl?"

As the little colored messenger turned around and saw the fine figure of the Doctor himself, she exhibited much embarrassment, but finally managed to report just about what she had told Sammy, but nothing more could be learned from her. The Doctor told Sammy that he would go at once, and the boy was glad to hear him say that he could accompany him, for Sammy thought his folks must indeed be very sick to send for both of them. The horse was ordered, and by the time the Doctor had gathered up his medical and surgical cases for any emergency which might be presented, old Jude was at the door, snorting and throwing up





her head as if fully comprehending the situation and only impatient to hurry the physician and his intelligent assistant to the scene of distress. In a moment more both the Doctor and Sammy dashed off for the unpretentious home of the Tubbs' family.





CHAPTER XI.

THE TUBBS' FAMILY POISONED—THE CAUSE DISCOVERED—BRIDGET AND THE BACKWOODSMAN—WORMY PORK—TALK ABOUT FOOD—SPONSIE TURNED HORSE-THIEF—HIS CAPTURE IN THE PARK—CLOSE OF VOLUME.



THE whole family of Tubbs, sixteen in number, including the last baby of Sammy's mother, a pretty pair of twin babies of Sammy's eldest sister, the wife and mother-in-law of Sammy's eldest brother, and a niece and grand nephew of the Mother Tubbs,

liked to have died! Never was there such a sick household as the Doctor and Sammy found upon entering the home of the Tubbs' family on Leonard





street. The house, too, was crowded with sympathizing friends, who, instead of rendering any assistance to the sufferers, were talking among themselves in a pathetic monotone of the extraor-



dinary circumstance that the whole family should have fallen sick between daylight and noon. Some of these croakers believed they all had been poisoned by a half-crazy colored soap peddler who lived in an alley just back of the house, and against whom the Tubbs' family

THE SUSPICIOUS OLD LADY. had entered complaint to the landlord of both premises for keeping six or seven dogs of various sizes and compass of bark. A very old colored lady, with a peculiarly pinched nose and chin for a person of her race, said there had been a quarrel between old Mrs. Tubbs and





the daughter-in-law, and that she believed that the latter knew something about it. A rather fine-looking old colored gentleman, who had only entered in time to hear the suspicion, and make one or two inquiries, pronounced this theory, in a very dignified manner, "Preposterous! simply preposterous, madam! for the young woman would certainly not have poisoned herself," he added, pointing with his cane to where she lay writhing with pain.



The Doctor and Sam- SENSIBLE OLD GENTLEMAN.

my entered just as the old gentleman concluded his remark. "This is the Doctor, is it?" he asked, turning toward the two new-comers. "You have arrived not one moment too soon, sir! Some mysterious devastating pestilence has entered this





house, sir ; everybody in it is sick, sir ; ” and dropping his voice, “ the true cause should be discovered, and the scoundrels who have brought this misery upon this inoffensive family should be brought to summary justice, sir. ”

Sammy first flew to the room of his father and mother, then to his brother's apartment, without being able to get an intelligible answer from any of them as to when or how they were taken so very ill. The Doctor, meanwhile, with his usual forethought, had by vigilant inquiry ascertained which of the entire family was the least prostrated, and was then in the eldest sister's room in conversation with her. By the time Sammy had reached the spot, the Doctor was prepared to say very positively that the family had been poisoned either by arsenic or by wormy pork ; “ probably the latter,” he remarked, for it seemed that Sammy's father had been white-washing in a large pork-packing establishment, and had taken his pay in side-pork, sausages, ham, and tenderloin,





upon which the family had been mainly subsisting for over ten days. Sammy was despatched with an order written on the back of the Doctor's card to the nearest optician's for a microscope, while the Doctor himself proceeded to search the cupboards for some of the family's supplies. He decided first to examine some sausages found hanging in the kitchen closet, and, on Sammy's return with the instrument, it soon became apparent that he had fortunately hit upon just the right expedient to throw light upon the "mysterious visitation," as the old colored gentleman now termed it, with a significant shake of the head. The sausage was literally alive with microscopic creatures technically called *trichinæ*, which are often found to infest pork.

Having found out beyond question the real cause of the affliction which had so suddenly fallen upon the Tubbs' family, and brought every member of it to a bed of agonizing distress, we will leave Doctor Hubbs and his little protégé to take care of





the sick people, and take a peep at what is going on at the residence of the Doctor.

Ah ! here is trouble too. "The ould bear," as Bridget calls him, is around again for either the



BRIDGET'S INDIGNATION. ●

sick monkey or the reward. He is greatly annoyed to find both the Doctor and boy away ; and both Bridget and the backwoodsman are surprised to find both of the monkeys missing. At the outset the latter didn't believe the girl when she told him





that the Doctor had recovered the real Sponsie, and they nearly came to blows about that ; then, when Bridget could find neither of the long-tailed jintlemen, as she sometimes called them, she was greatly exasperated to find she was discredited again. " Now, look a here, old gal, what's the use ov foolin' ! you know consummit well where that 'ère monkey is what I fetched here," said the backwoodsman ; and, as he finished the sentence with a defiant look, he replaced his pipe between his firm lips, and was just about to emit a stream of smoke, when Bridget snatched the pipe from his mouth.

" De ye think this is a bare-room, ye dirthy mon ? an de ye think gintlemin an laddies sich as mesilf would be afther livin wid, can consint ter stan still and say the carpets an furniture an lace cortains, an the walls an all the foine things ye say here sinted an smithered up wid yer dirthy terbaccer ? be out wid ye now ! I'll call ter the poor sick missus yer afther distarbin wid yer smoke and





nisy big fate!" Saying this, she opened the door to the man just as the Doctor was putting his night-key into it to enter.

"Hello," blurted the backwoodsman; "'pon my word ye got here jist in time ter spile a little fun. What de ye think? that there gal was jist goin' ter put me out. I reckon she takes this child fer a grown-up baby or a suit of old duds stuffed with stable straw. She'll hev ter dubble up with another Hiberny an' hev a hull famly ov little Hibernys ter help her when she undertakes a little job ov that sort."

Bridget's black eyes flashed as if there had been calcium lights back of them while the backwoodsman was thus relieving himself, but awed by the Doctor's presence she withdrew, saying, as she did so—

"I'll lave the ould baste wid a gintleman that's too good ter trate him to the bating he deserves for his ongintlemonly—"

The rest could not be heard as the door slammed





behind the enraged servant. The Doctor had but one way of treating everybody, and that was as if the individual addressed was the best and most cultivated person on the planet. "Step into my office, sir. Sorry you should have had any trouble with our Bridget. She is a good girl if her fur is not rubbed the wrong way; but if she takes a notion that she is not well treated, you will encounter a physiological volcano, equal to anything terrestrial about Naples or the Sandwich Islands. She can beat Vesuvius or Mauna Loa when once set agoing. Now, my friend, be seated," said the Doctor, passing the man a chair, "and tell me, if you can, what is the trouble?"

While the backwoodsman was relating what occurred, there was a pull at the door-bell, which, in the absence of Sammy and Bidddy, and the exasperated condition of Bridget, the Doctor attended to in person.

A city expressman said his horse and wagon had disappeared from the next door, and after





much inquiry he was informed that it was driven off by a very small boy that came out from under the Doctor's steps.

Dr. Hubbs assured him that if such were the case the urchin must have been one who concealed him-



THE EXPRESSMAN LOOKING
FOR HIS WAGON.

self there for the purpose, as there was no one in the family who could possibly do such a thing.

Just as this man was leaving, Sammy made his appearance.

"Ah, Sammy, my boy, how did you leave the folks?" inquired the Doctor anxiously, as he had made three calls on his way home after leaving

the sick-house in Leonard street.

"They all feel better excepting mother," replied the boy. "She has spells of great pain. The old





gentleman said he would stay with them and send us word if we were needed. So I thought I would come and see if you could spare the time to tell me all about this disease that that old man who knows so much calls trichiniasis. If I know more about it I can take better care of my folks, you know." As he said this he stood still upon the steps, looking up inquiringly into the Doctor's face to observe whether he would approve of this course or not.

"Well, come in then," said the Doctor; lowering his voice to a whisper, he added: "the backwoodsman is in the office, and had I not returned just when I did, I do not know but he and Bridget would have had a serious quarrel. Go up-stairs and get the sick monkey; Bridget said he was not to be found, but that was doubtless because she was vexed with the man."

Sammy ran up-stairs and then down-stairs; impatiently interrogated Bridget; then returned to the office panting as if he had been running a foot





race. "I cannot," he said, "find either of the monkeys, and I have been in every room in the house."

The Doctor felt sure that he could find them, remarking as he started up-stairs, that the two mischievous individuals had probably made each other's acquaintance during Sammy's absence. First he went into Mrs. Hubbs' room to tell her the news about Mr. Tubbs' family, and to see if the tricksters might not by some possibility have entered there. Then he went from cellar to attic, with no better result; the scuttle was raised and he went on top of the house. No monkeys were to be found.

He came down-stairs greatly excited: "There's an old saying," said he, "'that it never rains but it pours.' You," addressing the backwoodsman, "are here to settle the matter of the sick monkey. All of Sammy's folks are dangerously ill, and both Sammy and I ought to be there. Both of these mischievous creatures, who under pleasanter cir-





cumstances give us much amusement, are indeed missing, and I have made but three professional calls to-day, excepting to Sammy's house."

"Wal, never mind, I'll call agin," said the backwoodsman, pressing down his slouch hat, which had remained on his head all the time he had been sitting. "I won't bother you now, mister; only when I come agin, don't let me an' that ere Irish gal come slap together, or I may have ter do jist a little boxin' in self-defence." As Sammy opened the door for him to depart, the man said, with an exhibition of some uneasiness, that "he hoped they would find the little varmints, 'cause as how they're worth more than a hull litter ov pups."

"Now," remarked the Doctor, as Sammy re-entered the room, "I must make some calls which I ought to have made this morning. My regular professional engagements cannot be longer deferred. While out, I will notify the policemen wherever I go, that our two monkeys are missing. If they cannot find them, we cannot, unless it may be by





advertising, and there will be time enough to do that if it should be found necessary."

Sammy looked downcast and made no reply.

"What can we do better than that, my boy?" added the Doctor earnestly, when he noticed Sammy's demeanor.

"Oh, just now I don't care anything about Sponsie or the sick monkey, or anything else, excepting your kindness, and the sufferings of my poor sick folks. I only hoped I should find out more about the pork disease, so that I should know better what to do for them."

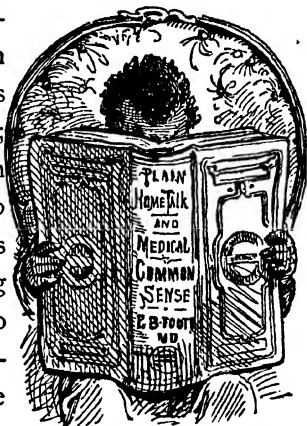
"My dear boy, with the many things pressing upon me, what you wanted to learn had escaped my mind altogether. I have not the time now to talk with you, but in this book," taking one from the library, "you will find all you want to know." Thus saying, the Doctor hurriedly left, with a hearty "thank you" from the lips of Sammy.

The boy was obliged to look for some time in both the contents table and the matter of the





book for what he desired to find. Turning to an essay entitled "The Food we Eat," he found out all about the little microscopic worms called trichinæ. Among other facts he learned that some investigators contended that one hog in every fifty or sixty is affected with trichinæ; that others held that ten out of every fifty are so diseased; that pork needs a great deal of cooking over an intense heat to destroy the little creatures; that when they are eaten by people whose fluids are not pure, they



SAMMY STUDYING THE PORK DISEASE.

cause pains, cramps, and sometimes loss of power, as in paralysis. He found it to be the author's opinion that the trichinæ would not revive after an ordinary cooking, unless taken into the stomach of





persons who by carelessness or ignorance had allowed their blood and other fluids of the body to become impure and in a measure corrupt.

The boy had been studying this subject for about an hour when the Doctor returned. "Do you suppose," asked Sammy of the Doctor, "that all my folks have impure fluids?"

"I think I shall have to say yes, Sammy. I'm inclined to believe what that writer says on this subject. If it be true, all of your father's family must have had a poor quality of blood and lymph, and, resulting from this condition, corrupt secretions, and in these unwholesome secretions, parasitic life develops and multiplies. You will notice that the writer concludes that paragraph there," pointing to the place, "by saying that perhaps the habits of the human family are universally so bad that every one eating raw pork affected with trichinæ is liable to an attack. If so, a family living for a long time upon poor or impure food, may lose health of blood and be made thereby





MR. AND MRS. PIG GLAD TO SEE PORK-EATING DENOUNCED.



susceptible to the pork disease, even if the pork which is eaten be pretty thoroughly cooked."

An unusual expression of sadness spread over the boy's countenance as he took from a side-pocket his handkerchief, and wiped away the tears that started in his eyes. Then, with a tremulous voice, he said "that if his father and mother and brothers and sisters would only get well this time, he would see what he could do towards getting them to live in a more healthful way.

"That is indeed a noble purpose," replied the Doctor, sympathetically; "but so far as improper living is concerned, this evil does not exist simply among poor people. While poor folks are some times insufficiently and improperly fed, rich people are quite as frequently over-fed. Even intelligent men and women of all classes know too little about the physiological effects of various kinds of food. For example, insufficient or innutritious food makes the blood poor and watery. Too frequent eating of very nutritious food is liable to





destroy the balance between the fluid and more solid constituents of the blood, and cause the solids to so far predominate as to impair the circulation, and induce inflammatory or paralytic difficulties.



THE HOME OF THE TUBBS.

Hence rheumatism, gout, and paralysis are as common among people of comparative wealth, as consumption, marasmus, low forms of fever, and trichiniasis are among the poorer classes. Dr. Trall ascribes the death of Professor Agassiz to the eating of either too much or of too concentrated food.

His capillaries became obstructed by reason of his blood becoming too thick. And, as I read the report of the physicians who conducted the autopsy of the great naturalist, it seems to me there





is much therein to confirm the opinion of Dr Trall."

"Autopsy?" repeated Sammy with an inquiring expression quite in contrast with the sad one that had overshadowed his countenance but a moment before. "Autopsy? please tell me what that means."

"In medicine it means the dissection of the dead body, for the purpose of determining the nature and location of the disease which occasioned death," replied the Doctor.

"And did they cut up Professor Agassiz?" inquired the boy with increased astonishment; "did they dissect the great naturalist?"

"Yes, my boy," resumed the Doctor, "but it is said to have been done in compliance with his own request. The autopsy was conducted by Dr. Morrill Wyman, of Cambridge, in the presence of six other physicians. Much derangement of the arterial system was found to exist, and some of the vessels were found to be actually plugged up."





"Well," ejaculated Sammy, "if Prof. Agassiz did not know how to feed himself, who does?"

"Very, very few," answered the Doctor, with serious emphasis. "The great scientists can tell you about the heavens and the earth; the manufacturers about the complicated arrangements of their immense factories; and the machinist about the complex mechanism of the steam-engine; but how few of these people understand correctly the construction of their own bodies, or the best means of keeping them in running order. The observance of a few simple rules would prevent much sickness and disease, viz.: a generous diet for the spare and bloodless; coarse food containing a limited proportion of highly nutritious matter for the fleshy and full-blooded; a very temperate use of all kinds of food by those who do not labor with head or hand; and extreme caution in taking food immediately after great mental or physical exertion, when the nervous forces are too exhausted to carry on the work of digestion."





At this moment the conversation was interrupted by the sudden intrusion of a policeman, who said a monkey was in the police-station on Twenty-ninth street, under arrest for stealing an express wagon !

The Doctor with a quizzical look replied, " You don't mean to say that you can legally detain a monkey for stealing, do you ? "

" I mean to say," answered the policeman rather gruffly, " that a monkey said to belong to you has kept an expressman out of the use of his horse and wagon all the afternoon, and somebody will have to settle the damages before the little thief will be given up."

Thus saying, he turned about and descended the steps as if in a hurry.

The Doctor and Sammy looked into each other's faces in mute astonishment for a few moments, although the Doctor's eyes were lighted with humor. Suddenly this expression was changed to one of perplexity.





“Stop a minute!” finally broke forth from his lips. “I begin to comprehend the situation.” The Doctor then told Sammy about the expressman having called and complained that some one issuing from the basement was said to have driven off his horse. “He was leaving just as you came up the steps. Do you remember? I told him that such a thing was simply impossible, and the man went away without further remark, doubtless thinking, as I did, that such a thing was not very likely. But, as two and two make four, I now see what the absence of Sponsie and the loss of the expressman’s horse and wagon, happening at the same time, mean. I will go over at once and see about it,” concluded the Doctor, taking his hat and cane. “Probably both monkeys are there,” he added, as he walked down the steps, leaving Sammy looking as if everything was getting terribly mixed between the sickness of his folks, the loss of the monkeys, and the gruff statement of the policeman that there were damages to be paid.



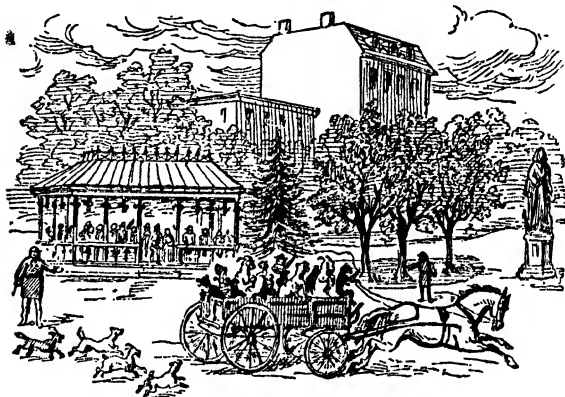


The comical side of life will often present itself when the mind is overshadowed with gloom. Circumstances had been gradually forming a picture that day which, when presented to the mind of Sammy, would make him roar in spite of his grief. The Doctor was not gone long, and on his return he had the following story to relate :

Sponsie took the expressman's horse and wagon and drove rapidly up Broadway, stopping here and there to pick up every dog he could master, and every goat that he could lift ; so that by the time he reached Central Park he had a pretty good lot of dogs, goats, a few cats, and quite a number of dirty-faced urchins who had jumped in while the wagon was in motion, taking the cats with them to make up an assortment. The policeman at the entrance of the west drive was so amused that he did not intercept the jolly company, for Sponsie was putting on the whip and going at break-neck speed. The drives of the Park were quite crowded with carriages, landaulets, and coupés, all of which



had to hastily turn out for the reckless driver with his portable zoölogical exhibition. But each one's momentary fright, in view of possible collision of wheels, gave way to wildest mirth as the monkey,



SPONSIE ENTERING THE PARK.

with his odd-looking load, went whirling by, the lash flying, and the heels of the affrighted horse often rising as high as the wagon-box. Just as the vehicle swung around from the side drive opposite the St. Vincent, and was about to descend





the hill in a most reckless manner, two or three policemen sprang to the side of the horse and succeeded in stopping the "great moral show," as Mr. D. S. Thomas, of Barnum's exhibition, would have called it. The urchins jumped out and escaped; the foaming horse was put in one of Mr. Radford's cleanly sheds and comfortable blanketed; the dogs, goats, etc., were put into a close stall, and the monkey was taken into the hotel. In a couple of hours Sponsie would have been pretty nearly killed by the owners of the goats and dogs, coming up one after another, whither they had traced their stolen property, had it not been for the good-humored protests of Mr. Radford and the Commissioner, who seemed to regard the whole matter as a joke to laugh over, rather than a theft to be punished. Finally, the monkey was taken again into the wagon by one of the policemen, who happened to know where the mischievous animal belonged, and he and the expressman drove to the Twenty-ninth street police station, that being the





one nearest to our residence. From this place a policeman was dispatched to notify us.

Sammy nearly laughed himself into a fit during the narrative, but after a while sufficiently recovered his balance to inquire as to the extent of the damages to be paid.

"Well, that is the sorry side of a good story. I must send you over with ten dollars, and you are to bring the irrepressible animal home. The expressman wanted twenty, but he fell into the merriment which pervaded the place, and compromised on ten. What Sponsie will be into next, somebody who has studied the cerebral physiology of monkeys may be able to tell, for I cannot." Taking a ten-dollar note from his safe, the Doctor sent Sammy to pay damages and take Sponsie away.

Here, I regret to say, I must bring this chapter and volume to a close. The Tubbs' family is very sick: The backwoodsman's monkey is missing. The backwoodsman has returned home with not a





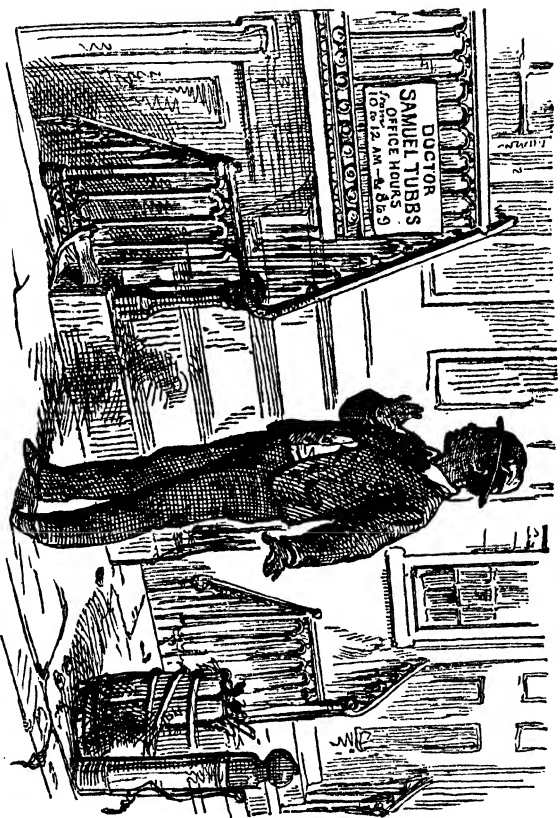
little anxiety concerning the missing animal, for which he would like to obtain the expected reward. Sammy is anything but comfortable about a good many things, not the least of which is the illness of a pretty good-sized family of which he is by the ties of blood a member. Nevertheless, we will hope that everything will come out all right.

Meanwhile, keep up with Sammy in all that he has learned about the arteries, veins, capillaries, lymphatics, lacteals, and villi, all of which may be grouped under the classification of circulation and absorption. Do not let a little colored boy get ahead of you. Good Bye!





PART THIRD.



SAMMY INTRODUCED TO HIMSELF. [See page 17.]



CHAPTER I.

THE PRACTITIONER TUBBS.



RAC what?" I imagine I hear some of my young readers inquiring. But that is the word I mean: Practitioner! Sammy has become a "practitioner of medicine," as one is called who advises and gives medicine to the sick. Call him Doctor of Medicine,

if you choose; but it suits my purpose better to call our little prodigy Practitioner Tubbs.

I have a whole budget of news, and hardly know





where to begin to tell it. But the best thing is that Sammy has found an enthusiastic friend in that old colored gentleman who was at the house of Sammy's folks last summer, when they were all taken sick. His name is Mr. Frank Johnson, and he became very rich in the oyster business. When he saw what a smart, promising lad Sammy was, he seemed ready to do anything for the boy or for his father's family that would promote his interests or their comfort. Just as soon as the Tubbs family got so that they could be moved, he took them out of their squalid quarters and gave them, rent free, the use of a pretty brick house belonging to him in West Twenty-seventh Street. For Father Tubbs he secured some first-class patronage in the way of whitewashing, and for Mother Tubbs he succeeded in getting the promises of enough well-to-do families having washing to be done to give the old lady all that she could comfortably manage in her department, if she should recover. He also succeeded in finding various positions for





the brothers and sisters, whose time was only half occupied in any useful way when they were all in Leonard Street.

To Sammy Mr. Johnson proposed that if he would give three hours in the forenoon and one hour in the evening to teaching the colored children and medically advising the older colored people who might wish to obtain his counsel he would pay him ten dollars per week in addition to giving his father's family the use of the house. Splendid offer ! you all will say.

When the proposition was first made Sammy could hardly see how it would be possible for him to accept it, for he rightly thought it would be a great disappointment to his kind friend and instructor, Doctor Hubbs, if he should propose either to leave him or appropriate so many hours of the day to the benevolent purposes suggested by Mr. Johnson. He therefore gratefully declined the offer, after making many ineffectual attempts to break the subject to his employer.



Finally, the old colored gentleman, incidentally meeting the Doctor, told him what he had proposed to Sammy. "And didn't he accept?" inquired Doctor Hubbs, with much surprise, think-



MR. JOHNSON INCIDENTALLY MEETS DR. HUBBS.

ing that Sammy's boyish ambition would be tempted by such an alluring offer.

"No, sir," responded Mr. Johnson, "he seemed to think, sir, that it would hardly be right for him to leave you, sir, or use any of the time he ought





to spend in your service, sir. And seeing what a scholar you are making of the bright boy, sir, I did not feel like urging him, sir."

"Faithful boy!" exclaimed the Doctor. "I'll see about that, Mr. Johnson," and tipping his hat to the venerable colored man, he bade him good-morning.

At dinner that day, while Sammy was waiting upon the table, Doctor Hubbs said: "Sammy, you have been a remarkably good boy, and have shown a great aptitude for study. And now, while I should feel badly to give you up, I want you to understand that at any time you can do better for yourself in any way you are at liberty to avail yourself of such opportunity."

Sammy tried hard to speak, but he could not. His tongue would not move at his bidding. He partly hung his head and looked into the face of Doctor Hubbs with a restless and embarrassed gaze, much as a little boy would who had been doing a mean thing. The fact was, Sammy thought.





it would be mean to entertain any proposition that should in the least degree, if accepted, inconvenience his kind employer. What the Doctor meant when he addressed him thus, or at least what could be his motive, was beyond Sammy's power to imagine. But the Doctor said no more at this time.

In a day or two an opportunity offered for the Doctor to say to Sammy about the same thing again. The boy was still unable to reply or say one word about what Mr. Johnson had proposed. His little brain was full of answers but his agitated vocal organs were unable to utter them. The strange conduct of Sammy in each instance slowly led the Doctor to doubt if the old colored man had told him the truth. For the third time, some days after, Doctor Hubbs told Sammy that he must consider himself free to make any arrangements which would be to his advantage in any way.

Down went Sammy's head again. What can it mean? inquired the boy mentally to himself;





THE TROUBLESOME MONKEY.

14

has the Doctor got tired of me? for he now thought that if Mr. Johnson or anybody else had informed the Doctor of the proposition which he had received, his employer would say so when



THE MYSTERY ENDED.

speaking as he had done on three different occasions.

What can it mean? inquired the Doctor mentally to himself. The old colored man must certainly have told me a foolish falsehood. As both





the Doctor and Sammy were moving about the room, attending to their respective duties and wondering over this matter, neither speaking, a note asking him if he had talked with Sammy about the proposition was handed to Doctor Hubbs by Biddy from the basement. The note was signed Frank Johnson.

The Doctor read the note and then handed it to Sammy. His dark skin perceptibly reddened as he looked it over, nor did he raise his eyes from it when he had read it through. "Why, Sammy, have you not spoken to me of this if it indeed be true?" inquired the Doctor, with an expression of perplexity wrinkling his usually smooth brow.

"Because," said Sammy, bravely rallying from all embarrassment, and looking unwaveringly into the Doctor's face; "because I am indebted to you for all I have learned, and although Mr. Johnson has been very kind to my poor parents and has made an offer which is intended to benefit other poor people of my color as well as myself, I want





to continue to black your boots, and make your fires, and sweep your steps, and do all I can for you, until you get tired of me and want to put some better one in my place."

"Conscientious and grateful boy!" exclaimed the Doctor; "some new quality of goodness and fidelity is almost daily shining out from your black honest skin; and though it may not be the best thing to tell you of it, I really cannot help it, Sammy. And now that I have said it I would not take it back if I could."

This was the most overwhelming praise Sammy had ever received, and, fearing that it was not deserved, he was overcome for the moment with a sense of humility, and made no reply. He knew he was conscientious enough not to want any one to have a better opinion of him than he really merited.

As Sammy made no reply, the Doctor resumed: "Now, my boy, I have a proposition to make which may accommodate all parties concerned—





MR. PATRICK McMICKEN THE
TAILOR.

Mr. Johnson, you, and myself. I will get a small boy to attend the door and do light chores. Biddy will be married to Patrick McMicken the first of the coming month. You may take her place: By rising early you can do your morning's work before nine o'clock, and when it is finished you can have your forenoon. You can return here to set the table and do the waiting by half-past one or two. Then with your usual activity you can easily do the afternoon work so that you can be away for an hour or two in the evening."

Sammy's face brightened as the generous proposition was unfolded, but a cloud settled upon it before the Doctor concluded.





"What now?" inquired the generous man, ever able to read the boy's moods by the lights and shadows which came from his expressive countenance. "I was thinking," said Sammy, "that if I accepted the kind offers you and Mr. Johnson have made, how impossible it will be for me to go on with my anatomical and physiological studies. My time will all be taken up. I know," continued the boy, "that you have not much leisure in the fall or winter. But I would like to be where I can catch you when disengaged, for I can learn so much more from you than I can from the books. Being at home so much all summer taking care of my poor mother, I feel that I have made little or no progress for the past three months."

"Well, Sammy," replied the Doctor, "what was your loss last summer was certainly gain to many others, for old Mr. Johnson informed me that you spent your spare moments in instructing the much-neglected colored children in your neighborhood and in giving valuable advice about





the laws of life and health to the older ones. You cannot teach without learning something, and if you are disposed to accept Mr. Johnson's proposition I will arrange everything so that your instruction shall go on pretty nearly as usual."

The note was therefore answered and Mr. Johnson was informed that Sammy had accepted. It was proposed that he should begin his new duties with a new week. Sammy's folks were greatly pleased with the arrangement. His poor mother, by the way, was still a hopeless invalid from the effects of the pork poisoning. Her legs and right hand were paralyzed, so that she could not use them.

The Monday following, Sammy started at a quarter before ten o'clock for the field of his new labors. As he approached the house he observed a sign upon it, and without stopping to read it turned about hesitatingly to see where he was, for he thought he might have mistaken the street. Going to the lamp-post and reading the name of





he street which was painted upon it, he found that he had not. As he retraced his steps, he greatly wondered how it could be possible that he should have mistaken the house in which he had spent nearly the entire summer. Again as he approached the dwelling he was puzzled to see the edge of this sign coming in view, but made up his mind to go this time in front of it and see who did claim to live there. As he did so, a handsomely gilded sign met his astonished eyes, on which were the following letters in gold: DOCTOR SAMUEL TUBBS. Office hours from ten to twelve A.M. and from eight to nine P.M.

All sorts of inexplicable feelings ran over, under, and through Sammy as he stood there transfixed. His vanity was tickled one moment and his sense of responsibility was strongly agitated the next. Here was something to which he had aspired and had hoped some day to honorably reach; but was he prepared to accept the responsible position in which some kind and over-appreciative friend was





disposed to prematurely force him? In this dilemma he decided to fall back upon the judgment of his tutor, and finally dispose of the matter as Doctor Hubbs should advise. When at noon-time Sammy returned to the house of his employer, he told him what had been done by his enthusiastic friend the old colored gentleman, the boy's mother having informed him who had caused the sign to be made and put up. It is unnecessary to say that the Tubbs family were delighted with the idea.

Doctor Hubbs was not simply astonished. He could not conceal a feeling of disapprobation which took possession of his mind in view of what the old colored gentleman's mistaken judgment and generosity had led him to do.

"I will," he said nervously, "see Mr. Johnson about it." This was the only reply Sammy received, and in a moment more the Doctor was off in a perceptibly disturbed state of mind to find the colored millionaire. On reaching Mr. John-





son's house on Lexington Avenue he was ushered into a parlor of real magnificence. The mirrors, chandeliers, carpets, curtains, and oil paintings, as well as bronzes and mantel ornaments, were not only very costly, but had been selected with faultless taste.

The old gentleman was at home and approached the Doctor as he entered the parlor with a genial shake of the hand. When the latter made known his errand and his views in regard to it, Mr. Johnson said with great earnestness :

"My dear sir, I want to use the boy you have so patiently instructed, sir, as a kind of missionary among our greatly neglected people, sir. The sign, sir, I caused to be painted and put up, sir, to elicit from the ignorant people, sir, the respect to which the boy is justly entitled, sir."

"But Sammy has not had the advantages of a college course, nor even a complete course of instruction from a physician," replied Dr. Hubbs. "The boy is therefore being forced into a position





from which his own sense of responsibility leads him to instinctively shrink. He feels it, I see it, and every conscientious man or woman must appreciate it."

"Tut—tut—tut!" exclaimed the old man. "You do not consider, sir, that our race, sir, has no social position, sir; and that those who are unfortunate enough to fall sick, sir, receive but little sympathy or considerate attention, sir, from the highly educated men of your profession, sir. We have no physician of color, sir, in this teeming metropolis, sir, so capable as you have made Sammy, sir; and with his disposition to do the best he knows how, sir, with the fractional education he has obtained through your great kindness, sir, he is worth more to us, sir, infinitely, sir, than a dozen white physicians, who know ten times more than this boy does, sir, and will not give us the benefit of what they know, sir." The old man went on at considerable length in this strain, showing how utterly helpless poor people of color





are when overtaken with disease. He concluded by saying: "Those of us, sir, who have property, sir, can command average ability and skill with the fees we are able to pay, sir. But a black skin



with an empty purse, sir, goes begging for sympathy and care, sir, like the mangy cur, sir, that crouches and trembles and seeks to conceal its misfortunes under the shadow of your basement steps, sir."

This was an entirely new view of the question, which had not occurred to the mind of Sammy's preceptor. After some further discussion, it was decided as best that Mr. Frank Johnson's plans should prevail, sign and all, and Doctor Hubbs so stated the matter after returning home. But he

A MEMBER OF ONE OF THE
CITY'S UNFORTUNATE CLASSES.





promised Sammy, after having heard the truthful complaint made by Mr. Johnson respecting the disinclination of the profession to give careful attention to colored poor people, that he would not only stand ready to assist him if he should have some difficult cases, but that he would also answer promptly and attend carefully to all calls from the people of his race who should desire his services, whether they could remunerate him for this attention or not.

This promise greatly encouraged and strengthened Sammy. He no longer felt like shrinking from the responsibility imposed upon him by his old friend Mr. Johnson ; but resolutely determined within himself to give such close attention to study as would enable him to extend to his people those aids which prejudice now withholds from them in their hours of greatest need.

That, consequently, which in our title—The Boy Doctor—was prophetic, is now a practical reality. Master Sammy is a doctor to the extent





of being a practitioner of medicine among his own people. When he has cases which he cannot manage with simply the advice of Doctor Hubbs, the latter gives to them his personal services. It is true that Sammy has many such, and that with the kind assistance of the generous man who has so far prepared him for his noble work, together with the pecuniary aid of the liberal-hearted and wise-headed Mr. Johnson, his people have never been so well cared for before.

It therefore gives me great pleasure now to introduce my young readers to "Practitioner Tubbs," and to assure them that all of old father Tubbs' family excepting Sammy's mother have completely recovered under Doctor Sammy's care and his tutor's counsel. I am grieved to tell you, however, that the second monkey is supposed to be dead, but the manner of his "taking off" is as yet involved in unfathomable mystery.





CHAPTER II.

**SPONSIE TIPSY—DOCTOR WINKLES' CALL—HIS
MANIFEST DISAPPROVAL OF WHAT MR. JOHN-
SON HAD DONE—SAMMY PUT THROUGH A
RIGID EXAMINATION—HOW THE BOY TURNED
THE LAUGH UPON DOCTOR WINKLES—SPONSIE
HANGS HIMSELF—HIS MIRACULOUS RESTORA-
TION.**



PONSIE has taken to strong beer and lager! While Sammy's folks were sick Sponsie was left alone much of the time, and he seemed to have fallen into a dejected mood. Sammy is charitably disposed to attribute the unfortunate habit entirely to this

fact, but the Doctor, more wisely, thinks he contracted a taste for malt liquors while living in the





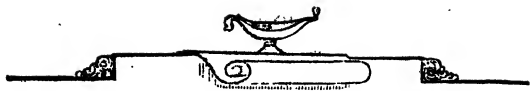
beer saloon in Hoboken. Be all these conjectures true or untrue, there was a drinking saloon just around the corner in a cellar, and to this place Sponsie would scamper whenever a door was acci-



THE TIPPLING TRUANT.

dentally left open. Of course he could get all he could drink, because the saloon was always more or less crowded with idlers, who would throw him pennies merely to see what he would do with them, and he seemed to be able to count five as readily





as his master, Sammy. Every time he picked up pennies enough to reach the requisite number, he would take a drink over the bar, greatly to the amusement of the by-standers. With only two or three pennies in his monkey fingers he appeared to realize that he had not capital enough for a first-class customer, and would not go near the counter. This was considered rarer wisdom than the average tippler exhibits under like circumstances, and it made his hectorers, who tried to urge him to the counter when he had collected but three or four cents, noisily merry. And when he received the fifth contribution and tipped his skull cap at the counter the crowd would roar with laughter.

The Doctor coming in at the basement with a coal-man, nearly stumbled over Sponsie, lying tipsy at the basement door. Sammy was called, and the naughty inebriate was carried into the kitchen. As the Doctor passed him again he playfully pulled the animal's tail, remarking that here was a tail which clearly pointed a moral! The





Doctor then explained to Sammy the terrible physical effects of intemperance, telling him how it paralyzed the nerve centres and injured the coatings of the stomach. Sammy having so recently studied all about the stomach and intestines, he was able to comprehend very readily how such a powerful poison as alcohol might inflame and otherwise derange their sensitive linings. Sammy was telling the Doctor what measures he should take to keep Sponsie away from the saloon, when he saw Doctor Winkles going up the front steps.

The boy was glad to be told by the Doctor to go upstairs and entertain Doctor Winkles till the man in the cellar could be properly directed in his work. Sammy had not, since Mr. Johnson set him up in the professional business, seen Doctor Winkles to tell him the news. But the boy's enthusiasm was perceptibly dampened when he observed that Doctor Winkles was affected just as Doctor Hubbs had been when told about the sign. This was the first interview in which Doctor Winkles had not





gone off in unconcealed raptures over Sammy's achievements. Instead of any such manifestation of happy surprise, the visitor settled down into a serious, meditative stillness, which was so depress-



SAMMY LISTENING.

ing to the boy that he slipped out of the room, feeling and looking like a little detected impostor, for he intuitively knew what was running in Doctor Winkles' mind.

When Doctor Hubbs came up from the cellar, Sammy, who was as a general rule anything but an eavesdropper, commenced wiping the paint of the door-casings just outside of the office room, where he hoped to be able to hear what Doctor Winkles said. And what do you suppose he did say? The two doctors were now alone. We will hold





still, open our ears, and listen, just as Sammy did :
“ Why, I declare, Doctor ! Have you lost your head ? Why do you let that old black fool make a young fool of your Sammy ? You surprise me ! I thought you were a man of at least a thimbleful of sense ! ” And so he ran on for some time before Doctor Hubbs, sitting quietly and taking it all, attempted to answer. It would have been like trying to stop escaping steam with the naked hand, to have said anything till the excited Winkles was thoroughly relieved. He blew off till the fire of his indignation and all the most effective words in the English language were exhausted, and then Doctor Hubbs began mildly to reply. For a while there were spurts of scalding criticism every now and then emitted from Doctor Winkles' excited lips. By and by only the gentle voice of Doctor Hubbs was heard uninterruptedly for the space of twenty or thirty minutes.

Not being able to distinctly hear this, Sammy left the door, deeply regretting that he should have





taken a step which had alienated the sympathy of his former warm admirer. He turned to clearing away the dinner dishes. By and by he heard the voice of Doctor Hubbs at the head of the basement stairs calling—"Sammy! Sammy!"

The boy ran up with anything but a light heart. He felt a fearful trembling at the pit of his stomach, and a little paleness stood on his dusky skin as he crossed the threshold of the room wherein the two physicians were sitting. The scene that followed! I cannot describe it! You should, all of you, have been there!

No board of censors ever put through a candidate for graduation with greater thoroughness than Doctor Winkles did poor trembling Sammy. First he questioned him more thoroughly than he had ever done before about the bones; then about the cartilages; then the muscles; then the arteries, veins, and capillaries; then on the general and pulmonary circulation. The rigid muscles of Doctor Winkles' face began to give way a little. By





and by, Sammy could see something of that genial expression streaming from his black eyes that he had noticed when the Doctor was pleased with the evidences of his proficiency. And by the time Doctor Winkles had finished questioning the boy about the lacteals, radicles, villi, etc., he sprang from his seat, and exclaimed—"Well done! here is my hand of fellowship, DOCTOR SAMUEL TUBBS." Dr. Hubbs was so affected by this time that the tears stole down his delighted face, looking like rain-drops in a sunlit shower.

"You can undoubtedly," added Doctor Winkles, "be of inestimable service to your people; and I do not know which the most to admire, the patient and successful teacher," casting his eyes on Doctor Hubbs, "or the ambitious and industrious student," turning them full upon Sammy. "I suppose," added he, "from what our friend Hubbs says, that you have not got far enough along yet in your studies to tell me what organs are concerned in the process of digestion, have you?"





"I guess I can tell you," replied the boy.

"You had better let what you have told Doctor Winkles do for this time," interrupted Doctor Hubbs, exhibiting not a little apprehension, for the subject of digestion was something the Doctor and his pupil had not as yet gone over together.

"May I, if I can?" inquired the boy in a tone of confidence not easily to be mistaken.

"Certainly," replied Doctor Hubbs, astonished at what he feared was presumption on the part of Sammy.

"I should be pleased to hear you," followed Doctor Winkles with an expression partaking of incredulity respecting the boy's ability to explain what his perceptor had not yet taught him.

"If you think yourself equal to it, Sammy, it will be sufficient for you to-day to tell Doctor Winkles the course of the food after it is taken into the mouth," added Doctor Hubbs, still apprehensive that the boy was venturing beyond his depth.





To alleviate the fears of his kind tutor, the boy started out in a very confident tone after this fashion: "Well, when I sit down to my dinner, my lips assist me in taking my food from my fork,



THE FIRST MOVE.

or my spoon. What I take from my fork, I grind up well with thirty teeth. My—"

"Haven't you thirty-two teeth?" inquired apprehensive Doctor Hubbs, who did not for the moment make allowance for Sammy's age.

"No, sir," said the boy with a twinkle in his eye and an unveiling of his eight incisors (or front teeth); "my wisdom teeth haven't grown yet! Perhaps they will in a year or two, and then I shall have thirty-two."

Both doctors laughed heartily, and told Sammy





that if he went on at this rate, his wisdom teeth would sprout up suddenly some night like mushrooms.

Sammy felt additional encouragement from this little event to go on, and added, "My tongue helps me to put the food between my teeth, and the insides of my cheeks aid me in confining it there till I get it thoroughly broken up. Then the salivary glands of my mouth pour in an alkaline lubricating fluid, which mixes with the food and makes it easy to swallow."

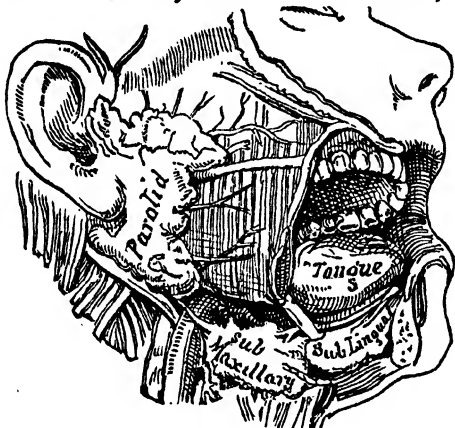
"What are the names of the salivary glands?" inquired Sammy's unmerciful censor, for Doctor Winkles felt like finding out just how much the boy knew, while Doctor Hubbs looked into the face of his friend with blank amazement.

Sammy dropped his eyes a moment and scratched his woolly head: "The parotid (a pause); the sub-maxillary (another rest); the sub-lingual and"—once more Sammy stopped to think, then looking up he said, "these are all the principal ones."





"Bravo!" shouted Doctor Hubbs, who began to feel as if Sammy could answer any question his cruel censor was disposed to ask him. "But now you let the boy alone a little while," said



THE SALIVARY GLANDS.

Doctor Hubbs to Doctor Winkles in a persuasive tone. "Just let him go on in his own way."

"While I am chewing up my food it becomes mixed with the salivary fluids; then I swallow it





by the aid of certain muscles in my throat, and as I do this it passes down a canal called the pharynx, which is about four inches long and which gives out an additional fluid to help pass the food along; this tube carries it down from my mouth to a canal called the œsophagus, which when I am full grown will be about nine inches in length; through this it passes to the stomach. As it does so it receives more wetting from other glands in this canal. When it goes into the stomach the latter gives it an acid bath with what is called the gastric secretion, and then it gives it what I should call a good shampooing, for it pinches and presses it and works it very much as one of those rubbers at the bath houses do people who come out of a Turkish or Russian vapor bath."

Both doctors laughed at Sammy's odd comparison, and Doctor Winkles improved the interruption as usual with a question :

"What is that action of the stomach called ?"

"Let the boy alone," begged Doctor Hubbs.





"Tell us, Sammy, for you are an encyclopædia," rejoined Doctor Winkles with a smile.

"I'll have to look into the dictionary for the word encyclopædia," said Sammy; "but I think I can answer your question. The motion," added the boy without hesitation, "is called the peristaltic action of the stomach."

Doctor Hubbs cast a triumphant glance at Doctor Winkles, but said nothing, while the boy went on with his story of the digestive process. "As the food gets thoroughly churned—and broken up instead of caked up as in making butter—it goes to an opening leading to the small intestines, called the pyloric orifice. This orifice knows its business as well as a door tender at the Minstrels. It will not let anything pass that it does not choose to. Food that has been sufficiently dissolved to be prepared for the next place is allowed to pass this gate into what is called the duodenum. This is a kind of meeting-house, for it is here that the thoroughly prepared food meets what comes from the pancreas and liver."





Again the doctors complimented Sammy for his apt comparisons, and again Doctor Winkles put in another of his (to Doctor Hubbs) vexatious questions :

“ Are you ready to tell us what the liver is, my boy ? ”

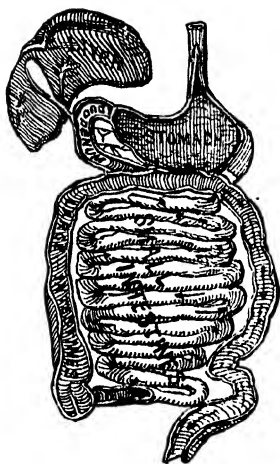
“ Now look here, Winkles, this has gone far enough,” implored Doctor Hubbs good-naturedly but earnestly. “ Just let Sammy go on without interruption ; by and by you will reach something you cannot answer yourself. Let the boy alone. Go ahead, Sammy.”

“ I think I can answer Doctor Winkles’ question,” modestly answered the boy, looking not altogether free from perplexity. “ The liver is what is called a gland, and it is the largest one in the body. It weighs about four pounds and is of a reddish-brown color. It is provided with artéries, veins, and lymphatics, from which somehow it extracts a liquid called the bile. It has also a kind of pouch called the gall-bladder in which it stores this bitter, slightly





alkaline fluid, which is of a dark golden color. When, after eating, the food begins to pass the pyloric orifice, the bile begins to flow into the duodenum and, as I said before, the food, bile, and pancreatic fluids all come together here; and to save Doctor Winkles the trouble of asking me what the pancreas is I will tell him."

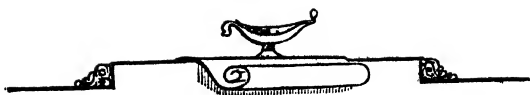


Both doctors laughed, and Sammy kept on with a knit brow, without even smiling :

"The pancreas is a gland made up very much like the salivary glands in

DIGESTIVE MACHINERY.





substance. But it differs very much in shape, being of a flat, oblong form and said to look something like a dog's tongue. It, too, is provided with arteries, veins and lymphatics, from which it somehow extracts what is called the pancreatic fluid, which is more alkaline than the bile and much like that fluid which comes from the salivary glands. The pancreas pours its secretions through a duct or tube into the duodenum when food is entering that meeting-house, as I called it. Then all these fluids and food particles join company as if they had been old friends, and move along the small intestines, which are of such a length that if stretched out instead of being all folded together they would measure over twenty feet in length. While going through this long, winding canal four millions of those little projections called villi stand ready like so many fishermen along the banks to fish out what each one requires, till by and by nothing is left but innutritious matter, and this is carried into the large intestine called the colon."





Both doctors looked at Sammy and then at each other in mute surprise, as the boy finished. He had not only followed his dinner from the time it entered his mouth till it reached its various destinations, but he had practically answered Doctor Winkles' original question as to what organs are concerned in the process of digestion.

Doctor Winkles, however, could not suppress an inclination to try and trip Sammy if possible, and finally broke the silence with—"Let's see, Sammy, has the liver anything to do but to secrete bile?"

Doctor Hubbs looked indignant enough to say something pretty severe, and probably would have done so had not Sammy promptly replied as follows:

"Now, Doctor Winkles, it is plain enough that you do not intend to let me go till you get the start of me. But I will make a bargain with you: after I have answered this question, I will put another to you with your permission, and if you answer it,





you may go on questioning me, but if you cannot then you are to stop."

"That's fair, Winkles," said Doctor Hubbs, feeling quite sure that his little student would not throw down this challenge unless he knew pretty well what he was about.

Countenances changed here, Doctor Hubbs brightening up, and Doctor Winkles looking considerably annoyed, as if he could not quite understand what was coming. Some people who can give a joke make sorry work of taking one, and so too there was quite a difference between being a questioner and the person questioned. Doctor Hubbs laughed outright when he saw that Doctor Winkles was really hesitating, and said: "Come, come, Winkles, you are in for it; come to the contest like a man."

"All right," responded Doctor Winkles, assuming a complacent demeanor which was not at all consistent with his feelings. "All right," he again repeated, "agreed!"





Sammy felt as if he were the censor now, and exhibited perhaps something more of a victorious bearing towards his superior than was altogether becoming in a boy. Nevertheless it might have been regarded as artlessness rather than rudeness, for it was quite in keeping with what any person would have felt in similar circumstances.

"Well, then," resumed Sammy, "I will answer you: the liver does have something else to do besides secreting bile. It also secretes sugar, which decomposes and disappears in the process of nutrition. And now, Doctor Winkles, will you be kind enough to tell me the precise function of the spleen?"

Doctor Hubbs clapped his hands and roared. Sammy assumed a dignified air, and looked Doctor Winkles steadily in the eye. Finally, when Doctor Hubbs' merriment subsided a little, Doctor Winkles asked him meekly if he considered it a fair question, when it was one which no physiologist could as yet answer.





Doctor Hubbs said in reply that he thought it was fair considering the peculiar circumstances. "You have," he continued, "been pursuing Sammy without mercy; you are an old practitioner with over twenty years' experience, and Sammy is nothing but a lad in his teens, and till very recently my door boy. I think it is greatly to the credit of the little fellow that he has studied digestion, secretion, and absorption up to a point where the doctors themselves are brought to a stand."

The real fact was Doctor Winkles did not like to be laughed at any better than a great many other people. He had been trying to turn the tables on Sammy for nearly an hour, and the contest had resulted in Sammy turning the tables on him.

Nevertheless, to the credit of the vanquished gentleman, he took it all good-naturedly enough at last. Before leaving he said to Sammy, "You may command my professional services in any





critical case, if Doctor Hubbs should not be at liberty to lend you a helping hand."

Sammy greatly appreciated this generous offer, and warmly thanked him. Doctor Hubbs also expressed great pleasure that his friend Doctor Winkles was willing to lend his counsel and assistance to the little practitioner if necessary.

After the guest had left, Doctor Hubbs asked the boy, with an expression of great surprise, when he learned so much about digestion.

"Last summer," replied Sammy, "when I was at home attending mother, I had a great deal of time on my hands, and with the books you so kindly let me take from your library I took an excursion through the alimentary canal, making all stoppages."

"You will do," said the Doctor with a smile, excited by the boy's original way of stating things. "Mr. Johnson has not hung out your shingle a day too soon, and Doctor Winkles and I will have to look closely to our laurels." Thus saying, the



Doctor picked up his medicine case, and jumped into his phaeton, which had been waiting at the door during the protracted visit of Doctor Winkles.

Sammy had to fly around pretty briskly to catch



A STARTLING EVENT.

up with his afternoon's work, for he was teaching an evening school in addition to spending the greater part of the forenoon at his office in Twenty-seventh Street in advising the sick. At seven o'clock he went to his room for the purpose of





changing his clothes, and was horrified beyond expression to find Sponsie hanging by his neck, and looking for all the world as if stone dead.

The boy lost no time in severing the cord which was attached at one end to the monkey's neck in just such a knot as only Sponsie could tie, and at the other to a firm nail on the wall where a picture had formerly hung.

As Sponsie came down on the floor with a heavy thud, not a muscle moved! For a moment Sammy was overcome with despair. Next he rallied and commenced rubbing the chest, legs, and arms of the seemingly lifeless body. But all to no purpose. The leg or the hand would lie still just where Sammy dropped it, nor could he hear any beating of the heart or notice any movement of the chest when he held his ear against it.

Once more the boy gave way to emotions of indescribable anguish, from which he was startled by the footsteps of the Doctor. Hearing Sammy's lamentations the moment he entered the front





door, Dr. Hubbs sprang up two steps at a time till he reached the boy's room, and in a moment more all the members of the household, including the invalid Mrs. Hubbs, stood around the motionless remains of poor Sponsie. All were nearly dumb with fright and surprise. Only the Doctor and Sammy attempted to do anything. As soon as the facts became known to the former, he lost no time in trying one more agent for the restoration of Sponsie. That was electro-magnetism. The Doctor had a machine, and in a few moments he was applying the positive electrode to the monkey's head and spine, while the little practitioner was applying the negative electrode to the chest, pit of the stomach, and extremities.

The story will be too lengthy if I attempt to tell you all the encouraging and discouraging symptoms exhibited by Sponsie while the two doctors were working over him with electro-magnetism. But the result you will listen to with pleasure. Sponsie was restored !





As may be implied the little teacher was not at his evening school that night ; he was compelled to send word that he would be absent. As he sat beside the little would-be suicide, the Doctor proceeded to tell the boy how liable intemperance was to lead to some tragic end.

“ The momentary exhilaration produced by the liquor,” remarked the Doctor, “ was followed by drowsiness and stupidity, and in turn, as he came to consciousness, by despondency and despair. The monkey was made up sufficiently after the human pattern to be subject to like moods under similar circumstances. Intemperance leads to a multitude of crimes, not the least uncommon of which is self-destruction. It inflames the coatings of the stomach ; it disqualifies the liver for the performance of its duties ; it thickens the blood ; it deranges the circulation ; it causes the brain to shrink ; it brings on nervous debility, and in time paralysis if not something worse. In the language of Egbert Guernsey, ‘ alcohol, in doses





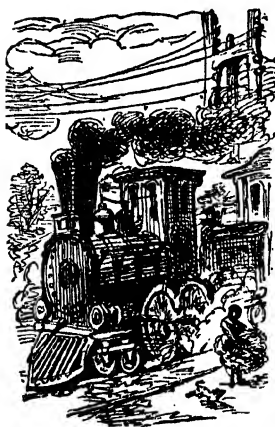
capable of producing drunkenness, has been found to be a true narcotic poison of the same class as anæsthetics, chloroform, sulphuric ether!' In brief," concluded the Doctor, "all kinds of alcoholic beverages should be dispensed by the apothecary, and then only by the prescription of the physician, who alone is capable, in the present physiological ignorance of the race, to determine the very difficult question as to who may and who may not be benefited by its momentary, occasional, or protracted use. It has its uses, but its abuses are frightful to contemplate."





CHAPTER III.

SAMMY'S REFLECTIONS ON RECENT EVENTS—A SECRET WHICH THE READER IS NOT TO TELL—A STRANGE STORY—SAMMY OVER THE DICTIONARY—THE DEFINITION OF ENDOSMOSE AND EXOSMOSE—BRIDGET FRIGHTENED—THE SEARCH FOR THE SPIRIT MONKEY.



OW rapidly, to the busy mind, events crowd one upon another! The unemployed and indolent make hours of minutes and weeks of days, so that remarkable episodes seem to them far apart. Sammy had, at his immature age, reached a point where he could take no great notice of commonplace things, for the





larger and more striking ones were persistently forcing themselves upon his attention.

As our little practitioner the next morning after the strange suicidal freak of Sponsie sat on the outer side of the window washing the glass and sash, he thought of some of the more striking events of his life since he left his humble home. Good results seemed to be as clear to his mental perception behind many seeming evils, as the objects in the room were clear to his physical vision behind the glass he was polishing with a chamois.

For instance: although he had often seen men intoxicated, and had joined more or less with the boys in laughing at their strange pantomimic performances, he had never, until his pet Sponsie had made such a ninny of himself under the influence of drink, fully realized the evil tendency of intemperance. Even the hanging by the neck till life appeared extinct did not in fact injure the monkey so much as did the liquor which had caused him to commit such a ridiculous act. His stomach re





jected everything in the way of nourishment, owing to the irritated condition of its coatings, and his unsteady movements, proceeding from nervous disturbances, were more the results of the injury inflicted upon his nerve-centres by the liquor than by the shock induced by his tragic attempt upon his own life.

As the dismal curtain which fell before the scene of the family poisoning arose again, here was another view which showed how temporary evils often result in good. He could see now that not only was he himself placed in a position where he could do much good to his down-trodden race, but he found other efficient co-laborers interested in extending comfort and assistance to his neglected people, and all these benefits resulting from what seemed like nothing but calamity.

To the spectator of this drama the first act revealed a whole family of heretofore neglected people prostrated by some strange malady. When the curtain fell nothing but evil seemed to hover be-





hind it. It rises, and lo! these people of want and ignorance are surrounded by comforts the very existence of which was formerly unknown to them, while the boy, who had hardly crossed the parental



SAMMY AT WORK.

threshold since he had left it with his complete outfit tied in a ragged handkerchief, stood over them, not only administering to their wants in illness, but instructing the younger members in those things which to them were inspiring revelations. Once more the curtain rises, and behold!

not only the young missionary and his venerable patron are again presented in their characteristic casts, but two skilled physicians are found to be proffering aid to the ignorant sick and suffering outside of the family circle which had originally given rise to this





blessed sympathy, while, glistening in the sunlight, upon the tasteful veranda of the family mansion of the humble Tubbs, were the golden letters—DR SAMUEL TUBBS—inviting the ignorant and suffering to come in freely and receive light for their benighted minds and succor for their physical ills. Beautiful picture !

It was just this picture that was being photographed upon the mind of our little anatomist as he performed with active hand the work which had formerly fallen to the lot of Biddy, the chamber maid, who had married Mr. McMicken the tailor.

By the by, I have a secret which I propose to in trust to my young readers. But mind you are not to tell. “Mum is the word,” which I imagine comes from lips as compressed as a rubber face pinched on chin and crown between thumb and finger.

Well, now, Sammy has dropped many a burning tear in his solitary moments over the unaccountable loss of the sick monkey. He thinks that





Sponsie Number 2 must have fallen into unsympathetic hands, and, in the absence of that care which he had formerly received, passed away forever. This is not so. But this is just what you are not to tell. The particulars are as follows:



MUM.

Just before Sponsie Number 1 ran away with the expressman's horse, he slipped out of the kitchen, where he was under the care of Bridget, the cook, and took a stroll upstairs. Reaching Sammy's room in a careless, jumping manner, he was brought to a perfect stand-still upon confronting for the first time his Highness Sponsie Number 2, and that, too, right in the room of his master! Doubtless his first monkey thought was that he had come in front of a huge mirror which simply





reflected the image of himself, but when he raised himself upon his hind feet in surprise, the supposed shadow or reflection crouched down and crept off affrighted to a position under the bed where it could just peep out. Sponsie Number 1 was not to be taken in by such an unlikely explanation, and rapidly his hairs began to rise all over his body, till there was not an object in the room that was not directly pointed at by them! The two monkeys eyed each other fiercely for a few moments. Then Sponsie Number 1, who was much stronger, seized Sponsie Number 2, and winding the end of his tail tightly round the weakling, drew him rapidly about the room for a few moments, and then, jumping on a chair, proceeded to swing the poor fellow so near the floor that his head kept bumping upon every downward movement in the semicircle which he was forced to describe.

The violent chattering of Sponsie Number 2 and the shrill, bark-like scolding of Sponsie Number 1 failed to reach the ears of any of the Hubbs





family, for both the Doctor and Sammy were absent, and Mrs. Hubbs was shut up in her sick-room. So after Sponsie Number 1 got tired of torturing his rival in the strange fashion described, he imprisoned Sponsie Number 2 in the dark closet. But the latter did not feel safe from his persecutor, when he found himself shut up in this place, and scratching away till he loosened a board in the floor, he made his exit to a space where, between the ceiling of the rooms below and the floor above him, he had pretty much the range of the upper story, where were Sammy's and Bridget's rooms and a large room for storage.

Ever since the loss of the sick monkey both Bridget and Sammy had from time to time declared that they heard strange noises in the night, and on one occasion Bridget took her pillow and blanket and finished a sleepless night by taking a morning doze in the kitchen. Sammy had many times been awakened, and raising himself up in his bed, imagined he could hear the voice of the sick







monkey. A spiritualist who consulted the Doctor, on hearing the story, told Sammy that he had no doubt at all but that it was the ghost of the departed monkey.

Meanwhile, what was strangest of all, Sponsie Number 2 was regularly fed and watered by Sponsie Number 1, who took things up to the closet every day, when unobserved, for his prisoner to eat! He was sufficiently bountiful to cause Bridget to exclaim quite frantically that "Sponsie, the starvin' crature, ates more nor all the rest of the house, so he does!" Indeed, Mrs. Hubbs was somewhat suspicious that Bridget was feeding some poor relations, and saw fit to put various checks upon the suspected servant.

Sponsie Number 1, being sick from his spree, was not able to give his usual attention to his rival, and while Sammy was at his work on the outside of the window-sill, the attention of the family was diverted to the upper story by the clatter of the starved monkey. Finally Sammy was called, and





the search was continued without avail, for, though the boy looked into the dark closet, Sponsie Number 2, fearing that it was Sponsie Number 1, kept himself concealed beneath the floor. Sammy did not see where the board had been removed, nor yet the bowl and pan where Sponsie Number 1 was in the habit of depositing food and water for Sponsie Number 2, for a large black trunk stood just in front of the open place where the sick monkey came out to take his rations when all was still.

The search was discontinued, inasmuch as the Doctor was compelled to return to his duties and Sammy was obliged to go to his office in Twenty-seventh Street to attend to his professional calls.

At dinner, however, the mystery was discussed, and the family were pretty much disposed to accept the explanation of the phenomenon as given by the spiritualist, although not one of them had before taken much interest in what are called spiritual phenomena.

A word not familiar to Sammy having been





used in the conversation at the table, he flew to the dictionary immediately after the family had finished dinner.

"What are you looking for?" inquired the Doctor of the boy.

"For the word *phenomenon*, and *phenomena*," replied Sammy.

On finding the word *phenomenon* he read the definition aloud as follows: "Whatever is presented to the eye by observation or experiment, or whatever is discovered to exist. It sometimes denotes a remarkable or unusual appearance, or an appearance whose cause is not easily understood or accounted for."

"And *phenomena*," added the Doctor, as the boy concluded, "is simply the plural of *phenomenon*. Now, Sammy, see if you can find *endosmose*."

"I did not hear you say anything about *endosmose*," exclaimed the boy with surprise.

"Never mind, Sammy, look it up," said the





Doctor, as if he himself wanted to know the definition.

Finding the term, Sammy read as follows : " Endosmose, the transmission of gaseous matters or vapors through membranes or porous substances, inwards."

" Very well, now find exosmose," added the Doctor.

Sammy's curiosity was so greatly excited to know what the Doctor's object could be in giving him these words to define that he could hardly keep his mind upon the term exosmose while looking for it, and he was an unusually long time in turning the leaves of the dictionary.

" Isn't it there ? " finally inquired the Doctor.

" Oh, I guess so ! " exclaimed the boy, coming to himself, and looking in earnest for the word. " Here it is, right here," he added after a moment's pause.

" Exosmose, the passage of gaseous vapors or liquids through porous media from within."





Strangely enough, after the Doctor had asked these questions, he took his medicine-case in hand and abruptly left, without telling the boy why he had asked him to look up these unusual terms. As Sammy's eyes followed him out, a smile encircled his lips as he contemplated this as one of the Doctor's dry jokes.

Turning to the dining-room to take his dinner, still wondering why the Doctor should have said nothing about these strange words after he had been given Webster's definitions of them, the boy said playfully :

"Bridget, what is the meaning of endosmose and exosmose ? "

"Ondosmoss and exosmoss ! " exclaimed the surprised girl. " Shure an aisen't it Irish moss you mane ? or mayba its Iceland moss," continued the girl, entirely acquainted with the first and somewhat acquainted with the second.

"Mose, not moss," rejoined the boy with laughter ; " endosmose and exosmose."



The girl stood still and looked at Samny in a most inquiring way for a moment as if she would like to know what he was trying to get at, when the boy gave way to louder laughter; where-



BRIDGET AS A SCIENTIST.

upon Bridget hastily turned to her work, muttering something not quite intelligible about mose.

Next Sammy asked Sponsie, who was sitting with his head tied up from the effects of his spree,





what was meant by the words endosmose and exosmose.

The monkey looked into Sammy's face and whined as if he would like to answer the question, if he was only feeling well enough, so his master excused him.

The two words kept ringing in Sammy's ears all the balance of the afternoon, and he was glad to see the Doctor coming in about five o'clock, for he determined to ask him why he wished to have those terms found in the dictionary. Embracing the first opportunity, the question was put.

"Because," replied the Doctor, "I wished you to know something about them; and I thought," added he, "that you would have curiosity enough after I left you to go to the library and find out something more than the dictionary told you."

"I did ask Bridget and Sponsie," replied Sammy, with humor flashing in his mischievous eyes. And the boy proceeded to explain how both the girl and the monkey had treated his in-





quiries, and concluded with the remark that he feared he should not have succeeded any better if he had looked into the library, not knowing whether to open Dickens' *Nicholas Nickleby*, *Pilgrim's Progress*, or Mark Twain's *Innocents Abroad* to find them.

"Wouldn't have thought of *Carpenter's Physiology*, I suppose?" added the Doctor.

For the first time it flashed upon the boy's mind that these words had some application to his physiological studies.

"How do you suppose the nutritious particles passing along the small intestines get through the membrane covering the villi? For their mouths are not on the outside of the epithelium," continued the Doctor, who was really quite disappointed not to find Sammy read up on this subject on his return, for it was not quite like his ambitious pupil, as he thought, to carry investigation no farther than to jocosely ask the Irish servant and the irrepressible monkey.





The boy looked down for the moment, engrossed with the mental question as to what a pickle he would have been in if the merciless Doctor Winkles had asked him about this matter.

The Doctor, seeing his discomfiture, told him to give his attention for a few moments and he would explain to him the process called by physiologists endosmosis and exosmosis. Said he :

“Carpenter reminds us that if a pig’s bladder, such as the boys sometimes inflate and use as a foot-ball, should be partly filled with some sugar dissolved in water, and put in a vessel of water, a gradual change would occur both in the contents of the bladder and of the vessel of water into which it was placed. The water



THE ILLUSTRATION OF ENDOS-
MOSIS AND EXOSMOSIS.





outside would slowly soak through the walls of the bladder to the inside, and the sweetened water would slowly pass through to the water outside, so that in a short time there would be little difference between the water inside and that outside the bladder in regard to sweetness."

"And would the sugar pass out through the walls of the bladder?" inquired Sammy, for he could understand how the water should be able to soak through, but could not quite see how the sweet of the water, which would be actually the sugar it contained, could pass out so as to sweeten the water in the vessel.

"Certainly," replied the Doctor; "and this illustrates the phenomena of endosmosis and exosmosis. The exudation of the sugar through the walls of the bladder is called exosmosis, and the soaking inward of the water to mingle with the sugar and water is called endosmosis."

This was enough for Sammy's perceptive mind. He exclaimed with great animation: "Oh, I see,





I see! And may I make the application of this law in the process of digestion?" asked the little Twenty-seventh Street practitioner.

"If you can, Sammy."

"Well, then," said the boy thoughtfully, and with occasional pauses as he proceeded; "when I take food into my mouth I first mix it with the fluids from the salivary glands; then I send it by the pharynx and œsophagus to the stomach, where it becomes mixed with the gastric fluids; then, as rapidly as it gets sufficiently diluted here, the gate-tender, called the pyloric orifice, lets it pass into the duodenum, which I call the meeting-house, because it here meets the liquids called bile and pancreatic fluid, from the liver and pancreas; and by this time I should think it would be in a condition to endosmose through the epithelium of the villi of the small intestines about as fast as a cat could jump."

As Sammy saw his way clear, he vaulted off the latter part of his explanation with great rapidity,





but when he reached the word jump he began to think he had been jumping at a conclusion, and after a moment's hesitation, during which he fell into a brown study, he raised his eyes and remarked, "This will do for endosmosis, but where does that twin fellow exosmosis come in?" The boy's odd expressions always excited the humor of his tutor, and the latter replied, "I guess you will find him hanging around there somewhere, if you look long enough, Sammy."

Sammy did look and he reflected, and every time he thought around a circle he would look up and smile at the reply which the Doctor had given him. In trying to settle a difficult problem it is probably the experience of all thinkers that they are apt to think in a circle, coming round without result, time after time, to the same point from which they originally started. This was precisely what Sammy was doing. Finally the little practitioner exclaimed: "I shall have to give that up. Be so kind as to tell me, please."





"I must express my surprise, in view of your usual ability to get at the bottom of things. Sammy," resumed his preceptor.

"You seem to understand that the mouth furnishes a liquid, that the stomach does the same; that the duodenum plays upon the food a couple of streams; now, why can you not readily conjecture that the intestines may pour out from their walls a liquid? It is believed that they do this, and here is the twin fellow, as you called him, exosmosis."

Again Sammy's face brightened as he replied that he surely ought to have thought of that. "So," he continued, "as the liquid mass of food particles press along through the twenty feet of intestines, there is this process of endosmosis and exosmosis going on all the time. Oh, I am mighty glad," rubbing his hands, "that Doctor Winkles did not think of the 'mosses,' as Bridget called them."

And as he pronounced the name Bridget, the





girl appeared at the door as suddenly as if she had risen from the floor.

“An’ shure, Dochter, yer house is haunted, an’



BRIDGET GETTING NERVOUS.

the divil is in it!” ejaculated the girl with protruding eyes and breathless accent.

It seems that Bridget was in her room, fixing herself up a little before the glass on the top of her bureau, when she was driven in fear from it by the loud chatter of the invisible monkey.





"Whin me ears wuz defened by his howld schramin," the girl continued, "I thought it must ba Sponsie Tubes himself that it wuz ; but whin afther goin down into the ketchen an' foindin' the little spalpeen sittin' upon his chair, wid his head all tied up like mesilf wid the toathache, shure an' I couldn't think it came out ov his throat, de ye moind !"

The Doctor and Sammy hurriedly ascended to the upper floor, and sure enough, they had never before heard such a racket from any invisible power. "There seems to be an active endosmosis from the invisible world," said the Doctor laughingly, "I wonder if there is any exosmosis ?"

"That depends," said Sammy, showing his mother-wit, "on whether or not the souls of monkeys exosmose into the invisible world, I suppose."

Both the preceptor and his pupil with good-humor rather than fear proceeded to look everywhere excepting under the floor for the source of the unaccountable chatter. Scientific study has a





tendency to exclude from the mind all fear arising from supposed supernatural causes. And though no explanation seemed possible for this strange noise, so much like the former sick monkey's chatter, the two doctors gave up the hunt in a better condition of mind than that which possessed poor Bridget, who, when it came bed-time, passed downstairs with a wild look, loaded with bed-clothes, for the avowed purpose of spending the night in the kitchen. Could she have known the secret I have intrusted to my young readers, she would have felt better. Sponsie Number 2 had been neglected by Sponsie Number 1 with his thoughtless head tied up, and the former wanted his breakfast, dinner, and supper, to say nothing of the supper of the night before which he also failed to get. "That's what's the matter."





CHAPTER IV.

MONKEY GHOSTS—THE STARVING CONDITION OF
SPONSIE NUMBER 2—THE CAUSES OF HUNGER
—PROF. BRAIN'S TELEGRAPH—SAMMY'S EF-
FORTS TO LIGHT A MATCH—A NIGHT OF
UPROAR AND MYSTERY.



HASING the ghosts of monkeys, who were slippery enough in the flesh, is about as uncertain an undertaking, as slapping the face for mosquitoes, hunting Florida undergarments for fleas, or feeling about for matches in a strange room at midnight. Sammy at last found the pastime practically a new version of blind-man's-buff. Bridget's superstitious fear





placed her where she had a good night's rest. Sammy's scientific pluck and investigating turn of mind resulted in keeping him in a state of marvellous uncertainty and physical activity from ten o'clock dark till sunrise.

Bear in mind, my young readers, that you promised not to divulge the secret I intrusted to you. We want a little fun at Sammy's expense. He does not know, as you, I, and Sponsie Number 1 do, that Sponsie Number 2 is still in the body, and, what is more, even within a few feet of his young master. But if Sponsie Number 1 does not feed his prisoner before another day passes the secret will be apt to get out and the imprisoned monkey too.

Perhaps no one who will have the opportunity of reading this book can tell from personal experience what it is to be in a state bordering on starvation. Perhaps none of you know the actual condition of the body when it is deprived of food. Just stop a moment and let me tell you.





You have learned from some of the past conversations between Sammy and his preceptor that your present body is continually dying ; or, in other words, that when you are eating and drinking your usual food and beverages the new materials which they contain go to make new bone, new cartilage, new muscle, new flesh, etc., while the old constituents of the body are as constantly changing into dead matter, which is taken up and carried away particle by particle by the same blood and lymph which deposits the new. In other words, the new is being deposited and the old is being carried away. You know all about this.

Well, now, when you are deprived of food and drink the crumbling away of your old body goes on in precisely the same way, and cries come in from all quarters—from the stomach, liver, pancreas, the arms, legs, fingers, and toes, and from every part of the body—for new building material. Those millions of little villi are on the alert to gather in





anything that comes along. They watch for it when it fails to appear with as much uneasiness as the farmer waits for a little spatter of rain during a protracted drought.

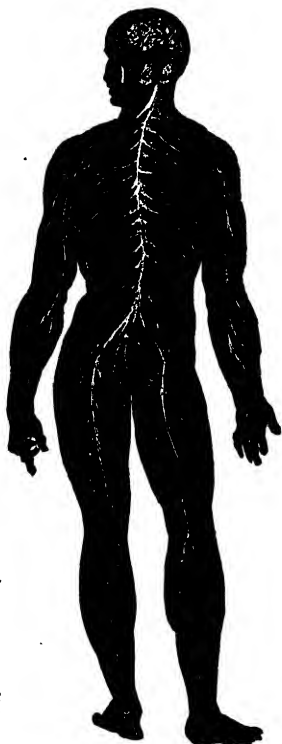
The body has a telegraphic system more complicated than that invented by Professor Morse, by which each distant part makes known its wants to the brain; and though the latter like a good ventriloquist makes the call for food appear to come from the stomach, there is no question but that complaints from the parts suffering from starvation are first reported to the Capitol of the Nervous System—the Brain. I will present here Professor Brain's telegraph, and as this idea and the naming of the Brain the Capitol of the Nervous System appeared originally in my Medical Common Sense in 1857-8, it will not be necessary for me to give credit to any of my numerous copyists.

This telegraphic system is made up of the nerve-fibres which go to every part of the body, and as remarked in my former work, they permeate the





skin so extensively that a slight change in the atmosphere is quickly telegraphed to the Physiological Capitol. Experiment has demonstrated the fact, that the intelligence of an impression made upon the ends of the nerves in communication with the skin, is transmitted to the brain with a velocity of about one hundred and ninety-five feet per second. Intelligence from the great toe is received through the nervous telegraph at the Physiological Capitol, called the Brain, in only about one thirtieth of a second later than from the ear or face.



PROFESSOR BRAIN'S TELEGRAPH.





Here my young readers have an opportunity to see how quickly even the little toe can make known its wants to the Brain. And you can see, too, what a frightful clamor must reach the Capitol of the Nervous System from every inch of the body when food is withheld. Some people imagine that the feeling of hunger proceeds alone from the stomach. Not so. The stomach may be, as it were, the sounding-board for all the cries of the starving organs and parts, but nothing more.

Imagine, then, how poor Sponsie Number 2 was suffering in every square inch of all his starved body. He had gone over twenty-four hours without food! While Sponsie Number 1 was napping with his head tied up by the side of Bridget in the kitchen, his little prisoner was storming around between the ceiling and the floor under Sammy's and Bridget's bedrooms, chattering and scolding wildly.

After trying vainly to go to sleep, Sammy sat upright in the end of the bed looking around im-





ploringly as if asking some invisible power what he should do. Finally he got up, and the first match he struck with his impatient hand sent its burning chemicals among his clothing upon a chair. This fire-spitting blot extinguished, with slight damage to the facings of his coat, another match was scratched, breaking off at its middle and going to the floor with a bright blaze. Sammy put his bare foot rather too hastily over the flame, for the stuff stuck to the skin and drilled a ragged hole through it. Meanwhile the chatter of the invisible monkey grew more and more terrific as he heard the movements of his young master dancing around to disengage the burning sulphur from his foot. Sammy never used profane language, nor did he in this instance, unless the contortions of the face could have been interpreted as a species of profanity. With the same perseverance the boy had manifested in the dry study of anatomy he picked up one match after another till a light was obtained.

The question as to what should be the next move



was considered with much perplexity. "If," thought Sammy, "this thing is a spirit, as Mr. Sprools believed, it is useless to pursue it. If it be Sponsie Number 2 in the flesh, where is he and



where has he been for so many months?" The noise increasing and seemingly more and more like that emanating from the throat of a live monkey, the boy decided to go downstairs and see if Sponsie Number 1 was really there. Maybe, thought he, that fellow is secreted up here somewhere.

PANTOMIMIC PROFANITY.

Reaching the kitchen, he found Bridget snoring, and again entered upon the difficult enterprise of igniting a match. This roused Bridget, who, in her fright, supposing the ghost had followed her down from her room, threw a whole bucketful of





water over Sammy, and rushed out into the hallway, alarming Doctor and Mrs. Hubbs as she ran frantically upstairs.

The boy was bound to find out now if Sponsie Number 1 was really in the kitchen or not, and shortly succeeded in getting a light, notwithstanding the two facts that he was dripping with water himself and the matches were thoroughly wet.

Sponsie was not there! He was frightened and ran out when Bridget did. This is another secret which you know but Sammy does not. So keep quiet. Say nothing. Here is a funny muddle. Let us see how they will get out of it.

Bridget fell her whole length at the Doctor's door. In a moment more the gas-burners in the family-room and hall were burning brightly, and in less time than is required to relate this, every apartment in the house was lighted from cellar to attic, so that you would have supposed that the building was illuminated for some particular occasion, had you passed by at that time.





Poor Sammy went upstairs dripping. Not only his night-gown, but his curly head, was drenched with water, which was running from the ends of his nose and fingers; for a colored boy's hair furnishes a better reservoir for a long supply of Croton than the straight sort affords.

A meeting of all parties concerned took place at once in the Doctor's room, Mrs. Hubbs getting into bed again and sitting upright while the conversation was going on.

Bridget had to be heard first as a matter of course, and it took her striking part a good while to run down, for her nerves had been pretty thoroughly wound up.

It came Sammy's turn next, and he gave his version, which explained the matter so far as the disturbance in the kitchen was concerned. When he concluded, he and the Doctor went to the attic floor, where, after a long search, they found Spon-sie Number 1, with his head tied up, inside the lower part of the wash-stand in the boy's room,







where they believed he must have been accidentally confined by some one, for the button on the outside was turned so that the door would not open.

Now what I am going to tell you is again confidential and something which you are faithfully to keep. That button was rather loose, and when Sponsie Number 1, in his fright and flight from the kitchen with Bridget, sought refuge there, the button itself fell into the position in which it was found. Meanwhile, Sponsie Number 2, hearing his tormentor, Sponsie Number 1, over his head, sank into breathless silence in his prison-house under the floor. All this private, you know.

The meeting again convened in the Doctor's room, but nothing would convince Bridget that Sponsie Number 1 was not in the kitchen when Sammy came down, for she declared she was awake when the boy came into the room, and that she felt Sponsie Number 1 by her side when she jumped up and threw the water in the direction





from which the noise that alarmed her proceeded. Bridget is not the first one who, while snoring, believed him or herself to be awake. Many supposeless nights are passed in this way by nervous people.

The Doctor, Mrs. Hubbs, and Sammy were satisfied, however, that the chatter which had awakened Sammy came from Sponsie Number 1 confined in the wash-stand; and after again putting the troublesome fellow downstairs, and persuading Bridget to return to her sleeping-place in the kitchen, Sammy changed his wet night-gown and returned to bed.

All this first rumpus did not end till about two o'clock. By three o'clock everybody was fast asleep again, but not long to remain so. The wild chattering was resumed, and even more frantically than before.

Another secret: Sponsie Number 1 heard the chatter this time, and knowing where it came from, went leaping up to the dark closet and, disappear-





ing behind the trunk, took it into his mischievous head to "haze" Sponsie Number 2 for a little while.

Sammy was again awakened by a terrible racket.



SAMMY AGAIN DISTURBED.

It seemed as if the great cage of monkeys from Central Park had been emptied helter-skelter into his room, and they had all taken to rough-and-tumble fighting. He cautiously raised himself in bed to listen. Remembering the disturbance that





his former rising had occasioned, he determined not to get up, but to sit there and analyze the mixed ingredients of the strange uproar, and then decide, if possible, within himself the real source of it. The bumping of heads against the floor, the shrill screams of first one and then the other, the scratchings of the numerous paws against the wood-work in the hot conflict, which seemed to Sammy's ears to be going on right under the floor, was, to the boy's mind, something which could not be accounted for as in the first instance, when Sponsie was found confined in the washstand. "Why!" exclaimed the astonished Sammy to himself, "there are not less than half a dozen monkeys under my bed at this very moment!" and as he said this, two heavy and successive bumps of monkeys' heads caused the floor to resound amid shrill screams from their respective owners.

He finally made a bold plunge out of the bed, striking heavily upon the floor. As he did so, he heard a scampering as if a dozen or twenty mon-





keys were running in every direction from under his feet. For a moment he stood still, unable to move, for he was by this time almost paralyzed with fright. A moment of quiet calmed him a little, and he succeeded the very first time in getting a light, as the first match in this instance, for some unaccountable reason, worked just right.

Once more he descended to the kitchen, taking the precaution this time to speak to Bridget before entering, for she was again breathing as if sound asleep. But she seemed to think she had not been asleep since the first disturbance, and when Sammy told her what had happened, the girl assured him that Sponsie had been in the chair beside her all the time.

"Faith an' here he aise!" added Bridget, putting out her hand and patting the monkey upon the head.

A light was struck, and sure enough there sat Sponsie, but this time without the handkerchief which had been tied about his head. (Private :



He had lost it while hazing Sponsie Number 2. Don't say a word). Both Bridget and the boy looked for it, but could not find it. This they would have considered as circumstantial evidence,



BRIDGET EXPRESSING HER MOIND.

implicating the mischievous little fellow, had it not been for the persistence of Bridget that she had not been sleeping and that Sponsie could not have left without her knowledge. Bridget was always positive. What she knew she knew.





"Ye'll foind out it's the ghost of yer sick monkey," added the girl, "an' whin ye heard the boightin' ye can belave me, yer room was afther gain' turned topsy-turvy wid the likes ov um from the museum thot was burnt on Fourtainth Strait. Ye nadent look for the likes of me on thot floor fur the whole winther. Much as iver I can do to slape here wid their goin's on." Saying this, she sank back upon her pillow with a peculiar moan. Sammy returned upstairs, overwhelmed with perplexity, which increased as he approached his room and heard again that unaccountable chatter. "There seems to be only one this time," said he to himself in a muttering tone as he entered the room.

By and by there was such a running about, whining, screaming, and chattering, seemingly right under his feet as he sat on the bedside, that he determined to go and awaken the Doctor. When the latter reached the spot all was quiet, and he was disposed to attribute all that Sammy had told





him to an affrighted boy's imagination. But just as he was leaving the room, ridiculing Sammy's alarm, the racket was resumed. . This changed the aspect of things as presented to the Doctor's mind.

"Go right down now, Sammy, and see if Sponsie is in the kitchen, and I will stay here and see if the noise continues." The Doctor said this with an earnestness which showed that he was now impressed with the strangeness of the whole affair as related to him by the boy. The latter returning with word that Sponsie was at Bridget's side so astonished the Doctor that he asked Sammy to stay and listen while he made an excursion to the basement. Sure enough, there sat Sponsie by Bridget's side. The girl had left the gas partly turned on when last disturbed. The light being dim, the surprised man thought he would take further evidence than that afforded by his vision, and so went into the room and put his hand upon the animal. There was no getting around the fact that there





was one monkey in the kitchen and the chatter of another in the attic, if there was any reliance to be placed upon his senses of hearing, seeing, and feeling.

Returning to the attic, he found the invalid Mrs. Hubbs, listening to Sammy's account of the mysteries of the night. Meanwhile the chatter was kept up unceasingly, coming apparently from the floor one moment, from the wall the next, and then at times it would seem as if issuing from Bridget's room.

A thorough examination was made of every box, bureau, closet, and trunk, and even the trunk in the dark closet was opened (they did not think to look behind it) and when the phenomenon baffled their united efforts for its solution, they gave it up as a conundrum, telling Sammy that they should have to believe all he had told them during the fall about the strange noises in his room. They were also disposed no longer to cast ridicule upon Bridget's whim. They returned to their room for a morning





nap, and Sammy laid himself down to noise rather than sleep. The former was abundant, and its abundance made the latter scarce and unsatisfactory.





CHAPTER V.

THE HAUNTED HOUSE ONCE MORE QUIET—THE
CURIOUS QUESTION PUT BY THE DOCTOR—
SPONSIE CARRIES AWAY SAMMY'S DINNER—
THE BODY-BUILDERS—SAMMY IN QUEST OF
HIS DINNER—A FUNNY SCENE IN THE KITCHEN.



OR fully a month after the eventful night described in the preceding chapter little else was thought or talked of in "the haunted house," as it was called by some of the neighbors, but the mysterious noises which so alarmed Bridget, discomfited Sammy, and puzzled Doctor and Mrs.

Hubbs. During all this time they were heard often enough to remind the family that the phe-





nomena had not disappeared. You of my readers to whom I have entrusted the secret can readily see the reason, and you can also understand why the noises have been less uproarious than on the late momentous occasion. Sponsie Number 1 was now regularly attending to the digestive machinery of Sponsie Number 2, and giving it the necessary material to work up in the process of appeasing hunger and keeping the little prisoner in bone, muscle, flesh, nerve, etc.

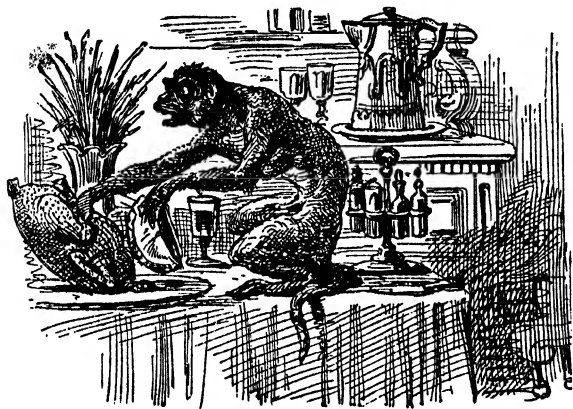
"There are a great many mysterious things in this world," remarked the Doctor to Sammy, as both walked into the office room after a dinner at which the former had been discussing with Mrs. Hubbs the inexplicable noises, and the latter had been as usual waiting with tray in hand. "Can you tell me, my boy, how the food which I have been eating is to be changed into the animal substance of which my body is composed?"

Sammy thought, when he had followed the food in its crooked pathway into the circulation, that





he had kept it company as far as circumstances would permit. Judge of his utter surprise, then, when his preceptor proposed this, to him, unaccountable riddle. "I wonder," queried he to

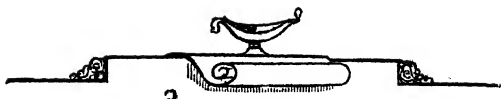


SPONSIE NUMBER 1 GATHERING UP A DINNER FOR SPONSIE NUMBER 2. MUM IS THE WORD.

himself, "if Doctor Hubbs will not yet ask me what part of my food produces the sound I emit when I whistle, and what part enters into the sound of my voice when I call Sponsie."

7





He settled down into a chair absorbed in thought.

The Doctor, too, took his easy-chair, with a smile playing about his eyes and the muscles of his mouth, for he knew very well he had asked a question which he could only answer himself by a kind of scientific guess-work. So, without letting Sammy get too much confused over the puzzling problem, he said :

“ You pause, my boy, a little inside of the line over which few scientists have passed, and in answering the question myself, I shall, before I get through, go a step farther than any physiologist, of whose writings I have any knowledge, has yet ventured. And to do so, I shall be compelled to look into the lowest form of animal life yet discovered, and grope my way upward from that living particle.”

Sammy's face brightened very perceptibly as the Doctor proceeded. What he most dreaded was the possibility of being asked something by





the merciless Doctor Winkles which he might not be able to answer. Hence, his first thought when asked a difficult question was, "What should I do if Doctor Winkles had propounded this?" But, as Doctor Hubbs was confessedly about to enter a field which was even new to scientists, our little practitioner felt a great sense of relief. He could, he thought, afford to be somewhat behind the scientific explorer, without being open to the charge of incapacity from Doctor Winkles or anybody else. And although he was fully conscious that his knowledge at best was limited, he desired to progress rapidly enough in his studies to answer any question relating to matters to which he had pretended to give his earnest attention.

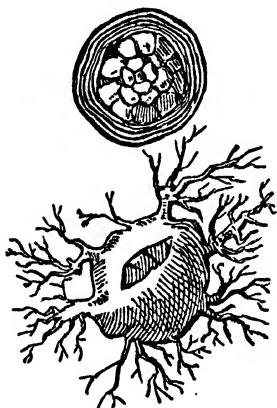
"At the bottom of the sea," continued the Doctor, "sometimes at a depth of over twenty-four thousand feet, there are found particles of jelly-like matter, so small that the microscope is necessary to reveal their character. By examination under this instrument, they are found to be





able to absorb nourishment, to grow, and finally to divide up into ever so many young or new ones. In fact, these little specks seem to be minute living creatures, and yet without any perceptible

mouth, stomach, arteries, or other distinct organs. Scientists call them Moners."



MONERS UNDER THE MICRO-
SCOPE.

Here the Doctor drew from his pocket a pencil, and made a picture of a couple of these microscopic creatures. Pointing to the upper one, he said, "Here is one as it looks when quiet, and here," pointing to the

lower object, "is one as it appears when it is about to envelop something from which it has an instinct to suck food."

"And is it going to take food when it has no





mouth or stomach?" asked Sammy, looking into the Doctor's face with surprise.

"That is the strange phenomenon presented by these queer little things in their home at the bottom of the sea," replied Doctor Hubbs. "There are other little microscopic particles in and about their homes called Diatoms, which seem to be composed of vegetable matter incased in a delicate shell. When one of these little Diatoms is near a Moner, the latter begins to throw out branches such as you see in the lower picture. By and by the Moner, with its sticky protuberances, attaches itself to the Diatom and draws the latter gradually within itself. In other words, it spreads itself around it. After holding the Diatom long enough to suck out all the nutritious matter, it slowly uncovers the little empty shell and throws it out."

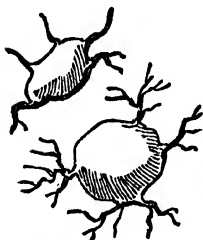
"And does the Moner grow with this curious way of feeding?" eagerly inquired the little listener.

"Growth seems to go on," replied the Doctor,





“until the one separates into a whole lot of little ones. In one kind, after reaching a certain stage of development, the Moner becomes a ball with quite a tough envelope, and finally this ball breaks up, setting free a great number,



BABY MONERS.

each precisely like the original one before it assumed the ball-like shape. In another kind, a groove forms around the old Moner, and this groove grows deeper till the Moner is divided into two, each having the peculiarities of the older one.” Here the Doctor drew with his pencil a few young Moners as described by the celebrated Hæckel, who first discovered them and their mother Moners.

As Sammy gazed intently upon what the Doctor had pencilled, wrinkles gathered above his eyebrows, and finally, with an outburst of impatience, which his interest in the subject had failed to control, he exclaimed :





"Well, I cannot see what all this has to do with that question you put to me. Is it too soon, please, to ask you?"

"It is now an opportune moment to make the application," replied the Doctor, rising to his feet and moving about the room for a little exercise while talking. .

"The white corpuscles of the blood," continued he, "in many respects resemble these little Moners. So far as experimenters have been able to examine them under the microscope at their natural temperature, they give evidence of possessing many characteristics in common with the little Moners at the bottom of the sea. For instance, Mr. Huxley tells us that they will change their forms with great rapidity, draw in and thrust out prolongations of their substance, and even creep about as if they were independent of everything and everybody. Experimenters have also found these corpuscles ready to envelop minute particles of any substance with which they are brought





in contact, or, in other words, to put themselves outside of these particles. They have been known to take into themselves fragments of the red corpuscles."

"Little corpuscular pigs!" exclaimed Sammy, with an outburst of enthusiastic astonishment. "And then these little scavengers are rooting around in my blood and picking up everything of a nutritious nature they can get hold of!" he continued, remembering what he had learned of the corpuscles of the blood while studying the circulation.

"You have caught the idea exactly," replied the Doctor, laughing heartily at both the boy's expressions of language and feature. "I am inclined to believe that the white corpuscles, which are in the lymphatics as well as in the veins and arteries, are just what seize upon the particles of nutrition taken up by the lacteals and villi and convert them into living animal substance. As they do so, they doubtless grow and divide as





one species of the Moners do, for they have been caught pretty nearly in this act. For instance, they have been found under the microscope, while going through other manœuvres, to nearly divide into two parts. If they can do this when removed from the living body to which they belong, it certainly is quite probable that they can freely divide and multiply in the circulation where they are constantly undergoing changes of some kind."

A long pause ensued, and while Sammy was buried in thought over the revelation, the Doctor took his seat at the desk and wrote a note to somebody. After writing it and placing it in an envelope, occupying fully twenty minutes of time, he was surprised to find Sammy sitting as motionless as a statue, his eyes resting upon the same square inch of carpet upon which his gaze was fixed so many minutes before.

"Another suggestive thought for the Moners of your brain to seize upon, and I will leave you for the present, my boy," said the Doctor, turning his





chair on its castors till he was again facing the little practitioner.

Sammy looked up* with good-humor gleaming from his dusky skin, remarking as he did so, "that if he had any brain Moners, they had been feeding and multiplying pretty rapidly for some moments, and perhaps the young ones were ready for more food."

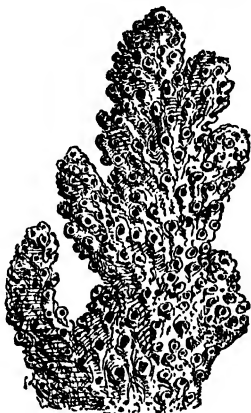
"Well, the idea of brain Moners or corpuscles for consuming mental suggestions is unquestionably a most extravagant and ridiculous one," resumed Doctor Hubbs. "But when you consider that all the hard as well as all the soft parts of the body, even the bones, have cells containing some kind of fluid, it does strike my mind as probable, to say the least, that each part has its own Moners or corpuscles floating in these fluids to build it up as rapidly as its old substance crumbles away.

"Look," continued he, "at the coral-builders called polyyps, that do the mason-work which supports the islands of the sea. May we not have in





the cells of our bones corpuscles which correspond in a measure to these? In other words, under forms of life somewhat modified from the coral-builders and Moners found in the ocean depths may not our bodies have bone-builders, cartilage-builders, muscle-builders, nerve-builders, and finally liver-builders, stomach-builders, and so on for every part of the body? In brief, may not the human body be an aggregation of these builders and of the substances which they produce, and may not the former be engaged



THE WORK OF THE CORAL-BUILDERS (POLYPS).

in the very cells of those substances in constructing anew while the old is as rapidly crumbling away? And may not the cells of to-day occupy the spaces of the substance of to-morrow, and the cells of to-





morrow the spaces of the substance of the day which follows, and so on, so long as the body is animated with life? For these little Moner-like corpuscles, superior to the little coral-builders to which I have likened them, may be able to keep moving from the cells they change to substance by their secretions to-day, to the room left by the decay and removal of what was substance yesterday, and back again when their new work has in turn become old and passed off with the waste matters? Moreover, it is not impossible that they themselves with their secretions and incrustations may go bodily to form these very substances as they reproduce younger corpuscles to take their places as anatomical builders, in more direct imitation of the little coral-builders!"

Here the Doctor picked up his medicine-case and left in a hurry, for he had spent double the time he had intended with his interested pupil.

As for Sammy, he accepted the idea of bone and muscle builders in almost a literal sense, and for





the moment imagined that his body was like a huge ant-hill, full of insect-life. But reflection toned down the extravagance of this impression, for he saw that there was really no striking similarity between a Moner and an insect, while a corpuscle possessed some characteristics quite unlike those of the Moner.

By the way, the bone-builders, muscle-builders, etc., all through Sammy's body were clamoring for new material. The boy had actually forgotten his dinner! He would not have felt quite sure of this with his mind thus preoccupied if he had not felt so terribly hungry. He had passed two hours beyond his usual dinner time.

On going to the dining-room, little was left but crumbs of bread. Passing into the kitchen, Bridget assured him that he had already had his dinner.

"Shure an' half a turkay was lift on the plate for ye, an' didn't ye ate thot up, an' all the pie, lavin niver a smither for yer poor cook?" Bridget was not a little put out about it.



Sammy rubbed his eyebrows as if trying to awaken from an uncontrollable stupor.

"Have I had my dinner?" inquired the boy of himself, passing his hand from his brows to his



BRIDGET AND HER WILLING WITNESS.

stomach. "Have I eaten half a turkey and half a pie?"

"I might lay the unaccountable circumstance to absence of mind occasioned by the strange stories of the Moners and corpuscles," thought he; "but





what will account for my hunger and exhaustion? Nevertheless, Bridget complains that I have eaten half a turkey and half a pie besides! Bridget has not a very good temper, but she would not wilfully tell a falsehood." Speaking aloud at last, he inquired earnestly :

"Bridget, do you mean to say I have eaten my dinner this noon, and that I have managed to stow away in my stomach half a turkey and half a pie?" Sponsie stood the picture of innocence near Bridget on the window-sill, ready to bear witness to anything the girl might say.

"Faith an' ye ken belave may, Sammy, if ye don't know that yersilf," replied the girl, hardly knowing what to think of the boy for asking such a strange question. "Doctor 'll make ye crazy talkin' abute the bones, an' blood, an' the mosses, an' the mourners," she added with a fierce expression of earnestness.

This was evidence to Sammy's mind that the girl had been around within hearing of the Doctor





and himself, for she came as near to the word Moners as her comprehension of the term would permit.

“Is it possible,” mentally inquired he, “that I sat down to my dinner when the Doctor opened the subject of the Moners this afternoon? And if I did, what will he think of me for having eaten in his presence half a turkey and half a pie? This troubled Sammy, for although he had not the slightest recollection of having taken a particle of food since his breakfast, Bridget seemed to know that he had, and, what was still more aggravating, both the Doctor and Bridget had seen him make a pig of himself by eating half a turkey and half a pie while he was so mentally occupied that he did not himself know it! “Astonishing! astonishing!” repeated Sammy to himself in a great state of perplexity.

Now my readers know what became of Sammy's turkey and pie. The funny picture in the first part of this chapter tells the story. But the chapter





must close, leaving Sammy in the greatest perplexity of mind in regard to his dinner. He feels as gaunt under his vest as if he had been leaning over a barrel the whole afternoon, and still Bridget accuses him of having eaten half a turkey and half a pie! "The corpuscular pigs are more ravenous than their namesakes in the farm-yards," thought he, "if they have carried away half a turkey and half a pie in less than three hours, and left my stomach as empty as a contribution hat at the feet of a small town parson!"





CHAPTER VI.

BRIDGET SUSPECTED OF DISHONESTY—THE UPROAR WHICH FOLLOWED—BRIDGET AND SAMMY HAVE SOME WORDS—THE FORMER PACKS HER TRUNKS TO LEAVE—TOWELING DISCOVERED IN HER TRUNK—AN EXCITING SCENE—A DISCOVERY IN THE DARK CLOSET—BRIDGET'S STOCK UP—SPONSIE'S STOCK DOWN.



Did Sammy have his dinner? The Doctor, when meekly approached by the nearly starved lad just before tea, did not think so. The boy certainly had not partaken of food in his presence, and if not while the conversation about the Moners had been going on, then it was evident to Sammy's mind that he had





really missed his noonday meal, notwithstanding the positive assertions of Bridget that he had shown himself enough of a gourmand to feed his "corpuscular" Moners with half a turkey and half a pie !

At the tea-table the matter was brought to the notice of Mrs. Hubbs, who felt no hesitation in saying that Bridget was evidently feeding some shiftless relative from the kitchen. "Perfectly ridiculous !" she exclaimed, "to charge Sammy with eating as much as had given the Doctor and myself two dinners !" This was said with not a little exhibition of irritability, for Mrs. Hubbs had hardly recovered from her illness, and had but recently ventured from her sick-room.

The doors between the dining-room and kitchen being slightly ajar, the irascible Bridget overheard the charge of her mistress, and the things in her department began instantly to send stirring echoes back to the dining-room. Chairs fell upon the floor, dishes rattled together as if an earthquake



had visited the pantry, and the iron potterry of the range joined in the jostling medley and dance which the excited hands of the cook were producing. Sponsie with a few rapid bounds dashed from



A CARICATURE OF THE KITCHEN UPROAR.

the kitchen through the doors, throwing them wide open, and alighted upon the window-sill of the dining-room, looking as if he would give all the professional fees he and Sammy, put together, would ever earn, to know what had so suddenly





aroused his friend and champion, Bridget, for the little disturber of the family peace was instinctive enough to know who had stood unflinchingly by him when the late "unpleasantness" occurred in the attic.

"Sammy, close those doors," said Mrs. Hubbs, in a firm undertone; and as the boy did so, she went on to say that for a long time she had seriously mistrusted Bridget of dishonesty; "now," added she, "I feel sure of it. Nothing could be more foolish than to charge Sammy with clearing the table of all that was left upon it; the girl knows better; and then to suppose that the boy has had his dinner without knowing it! the idea is absurd! Let Bridget go if she thinks she can find a place where they will have more patience with her bad temper and other peculiarities than we have shown."

Sammy was grieved to hear this, although he felt confident that he himself had done nothing to occasion the trouble. He felt equally sure that





Mrs. Hubbs was mistaken in supposing Bridget was dishonest. There was indeed something mysterious in the disappearance of the turkey, etc., but he thought he knew Bridget too well to believe she had taken the missing edibles.

As the boy was thus meditating, the Doctor expressed his doubts as to Bridget's dishonesty, but still he confessed his utter inability to give any explanation of the noonday mystery, or of some other equally suspicious circumstances related by Mrs. Hubbs.

When the family had finished, and Sammy sat down to his supper, he had not taken many mouthfuls before the enraged girl entered.

"If ye'd ba 'onest, ye littel black thafe, ye'd tell the missus the trooth, so ye wud, an' not ba afther lavin' the likes ov her to say sich things about the poor cook!" and as Bridget said this her black eyes burned with anger.

Sammy looked into her face calmly and earnestly, while he replied :





“Bridget, I have always been a good friend to you, and I would do nothing willingly to cause you trouble, but I honestly believe that you are mistaken in supposing that I had my dinner this noon. What became of the things which were on the table is another question. I do not believe that you took them, and I am sorry that the madam thinks you did. If it would have been proper for me to speak when she and the Doctor were talking it over, I should have defended you ; I believe you are a good, honest girl, and that your only bad quality is your awful temper. If you were yourself, Bridget, you would not call me a little black thief, for I am not a thief, nor am I an enemy to you.”

Both the expression of the boy's honest face and his kind words completely broke Bridget down. She dropped into a chair near the table, and sobbed convulsively. Finally, wiping away the tears with her apron, and rising excitedly to her feet, she said :





"Faith an' its mesilf that knows I've got a bard timper, and I nades no one to till me ov it, but sure an' I'm no thafe!"

"Nor have I called you one," interrupted Sammy, "although that is what you called me without any provocation whatever."

"But didn't the missus call me one?" retorted the girl, again bursting into tears.

"Well, it may have amounted to that," answered Sammy, "but supposing she should say that I took something that did not belong to me, would it be right for me to get out of temper with you, and call you a thief because of it?"

"If ye had tould the trooth, Sammy, she wouldn't bin afther layin' it onto may," replied Bridget, again wiping away the tears. "Yer woolly head aise so full o' thim yer moners, mosses, an' the likes ov 'em the Dochter's spakin' about, ye don't know what ye are about, be me sowl ye don't, Sammy!"

"Then you still insist that I cleared the table





this noon of pretty much everything there was upon it, do you, Bridget ? ”

“Faith an’ it’s me own silf that does,” confidently replied the girl, looking Sammy fiercely in the face. “The divil ov a haper did ye lave for me own dinner, an’ the missus now blames me wid dispensin’ it to me own poor relations !” Here again the girl gave way to violent sobbing.

Sammy saw that Bridget could not be reasoned with, and as he had by this time finished his supper, he quietly withdrew and ascended to his room to prepare for his evening duties at his Twenty-seventh Street office. As he left the table Spon-sie followed him, showing by the move that he did not care to be left in the companionship of his late friend and champion, who just now reminded the surprised monkey of a scared cat with raised back and fur and gleaming eyes.

Abandoning all her kitchen and dining-room things in a state of disorder, Bridget was soon in her own room packing her trunk for the avowed





purpose of leaving. Sponsie, dodging back and forth between her room and Sammy's, watched the motions of the girl with a great deal of interest, and seeing her put things in her trunk, he felt a



SPONSIE IN MISCHIEF AGAIN.

keen inclination to take a hand in the work. By and by, when everything had been put in that belonged to her, Bridget dropped down the cover and went to the dark closet in the hall to find her trunk strap, the lock having been broken. Sponsie saw his





opportunity. Wanting to have a hand in everything that was going on, he sprang to a towel drawer that was open, and taking two or three of the finest samples, he tucked them carefully into the trunk just as he had seen Bridget do with handkerchiefs, collars, and the like. This done, he replaced the cover and scampered away, for he had lived long enough to know that no one ever appreciated his kind endeavors. With a willing heart for work, and active hands for—what shall I say—mischief?—his gratuitous efforts were generally treated as meddlesome. So when he wanted to help anybody, he had to watch his opportunity and do what he could without a “thank you.” He was a disinterested and unrequited friend !.

Bridget was soon tugging away at the strap which she had placed around her trunk, meanwhile muttering to herself so loudly that Sammy could hear her without understanding distinctly what she was saying. Mrs. Hubbs, hearing the racket as the trunk by jerks went up and down





upon the floor in the room over her head, ascended the upper flight and walked into Bridget's apartment, saying:

"So you are going away, are you, Bridget?"

"Shure an' I ba," replied the girl, looking up with surprise, for it was not often that she saw her mistress on the upper floor. "It wouldn't be the likes ov may to be stayin' where the lady calls a poor, honest girl like meself a dirty thafe!"

"I never use such language as that," said Mrs. Hubbs with much emphasis. "I have not called you a thief, much less a dirty one. I am willing to give you credit for cleanliness, and I am not yet prepared to say that you are dishonest, although some things have looked queerly to my mind for some time."

"Throth an' didn't ye say thot I was fadin' me poor relations? an' wasn't it meself thot heard ye wid me own two ears?" responded Bridget, with anger still kindling in her eyes.

"I did say," replied Mrs. Hubbs, "that it





looked as if you were feeding some shiftless relative, and the circumstances make it appear to my mind very likely. How do I know that you are honest? How do I know that you have not at this moment something in that trunk that does not belong to you?"

This was too much for poor Bridget, and too overwhelming to provoke an angry reply. She sank upon an old chest near by, and, without a word passing her lips, cried like an overgrown child.

Mrs. Hubbs was about turning away, when Sammy, who had overheard the interview, made his appearance, and at once warmly espoused Bridget's cause; doing so with so much deference to his mistress, however, as to awaken her admiration rather than her resentment. He concluded by saying:

"Of course, Bridget, you can have no objection to letting Mrs. Hubbs look into your trunk. I will loosen the strap, and when she has looked





over your things, I will fasten the strap as closely as you **have** done." Bridget's gratitude was warmed by the defence of her character so eloquently given by the boy, and could not refuse, although she had, as all other girls have, some things she did not care to have everybody see, and particularly Sammy, who would be standing by while her "missus" would be examining her things. This exhibition of hesitation was so misunderstood by Mrs. Hubbs that she directed Sammy to instantly open the trunk.

Nearly the first things that Mrs. Hubbs' eyes fell upon were three of her very best towels! Sammy was nearly stunned with surprise. Bridget screamed, and fell her whole length upon the floor in a fit of violent hysteria, while her mistress resolutely proceeded to inspect every little package and parcel. Nothing was found but the towels, but these were enough to satisfy Mrs. Hubbs' mind after what had previously transpired. The next move for her and Sammy to



THE EVIDENCE OF BRIDGET'S GUILT.





make was to get Bridget upon her bed, for she was unable to help herself. The Doctor was called from below, and a medicine given, which, with his kind words, soothed her. The three then withdrew to Sammy's room, where the strange affair was talked over.

Sammy believed that the towel-packing was the work of Sponsie, for he saw the little mischief-maker dodging in and out of Bridget's room while she was packing.

The Doctor was disposed to take Sammy's charitable view of the matter, but Mrs. Hubbs said that a girl that would take things from the pantry and give them away without leave would steal other things. "Now I want," added she, "to look in that trunk in the dark closet, and see if she has taken any of my things out of that."

Sammy was directed to drag the trunk out into the hall, after which Mrs. Hubbs made a careful examination of things therein and pronounced them undisturbed. The boy felt as happy about





this as if he himself had been under suspicion
“Now get me a candle, Sammy, so that I can look through the closet and see if all that I have hung upon the nails are there,” continued Mrs. Hubbs, brushing with her hands the dust from her clothes, for this little place was not much frequented by anybody.

A lighted candle was soon brought and thrust into the closet, when lo! lying on the floor near an open place through the same, was not only the whole skeleton of a turkey, but ever so many other bones! The three looked in one after another, and then into each other's faces, with expressions of surprise mingled with glances of humor. “So here's Mr. Sponsie's restaurant, is it?” exclaimed Mrs. Hubbs. “His Delmonico's!” added the Doctor with a laugh. “The place where he feeds his corpuscular Moners!” joined in Sammy, with intense merriment.

Sammy stepped into the closet, and after throwing out bones enough to enrich a small-sized





wheat-field, found that he had not reached the end of this calcareous deposit. After removing a pan in which he found freshly-poured water (for Sponsie had attended to the watering of his prisoner



BRIDGET'S STOCK UP, AND SPONSIE'S STOCK DOWN.

only a few moments before) the boy came upon other bones by reaching his arm in through the open place in the floor."

It was Bridget's turn now. Hearing the laughter and rattling of dry bones, and the rebukes





hurled at poor Sponsie, she ventured from her room with eyes bloodshot from crying and excitement, just as Sammy's woolly head emerged from the dark closet.

"You are vindicated!" exclaimed Sammy, with a face radiant with joy and head enveloped in cobwebs. "See here—see all these bones," he added. "Monkey corpuscles couldn't put themselves outside of such evidences as these."

"This is a fresh turkey skeleton," joined in Mrs. Hubbs, picking it up by a wing and looking it over; "and undoubtedly the same one that disappeared from the dinner-table. "I regret very much that I should have suspected you, Bridget."

"But ye think I stole yer towels," said Bridget, with a voice still hoarse with emotion, for she was not yet ready to mingle in the merriment.

"No, Bridget," gently responded the Doctor, "we are quite willing to believe that the same little mischief-maker who has been making a





lunch-room of our dark closet, put the towels in your trunk, for it seems he was on this floor while you were packing. I think," he added in a tone of interrogation, turning to his wife, "that your mistress is quite willing to accept this theory?"

"I am only too glad to exonerate Bridget," replied Mrs. Hubbs. "Circumstances were very much against her; but now that one of the most unaccountable mysteries is cleared up, I feel satisfied that the girl is all right. At least I am quite willing to think so."

Without going into particulars, I will briefly add that within an hour Bridget was cleaning up the kitchen which she had left in disorder, the Doctor was off making his professional calls, Mrs. Hubbs was reclining upon a lounge in her room not a little prostrated by the excitement, Sammy was attending to his class of colored boys and girls at the home of the Tubbs' in Twenty-seventh Street, and Sponsie was receiving a scolding from:





Bridget which made his ears tingle while she did her work, the little fellow sitting with a sad face in his accustomed place on the kitchen window-sill. He is in a pretty pickle now, for the Doctor has not only nailed down the loose board in the dark closet and locked the door, but put the key away in his own room. The good man thinks he has simply cut short a luxury of Sponsie Number 1, not dreaming that he has destroyed the base of supplies of Sponsie Number 2. There's fun ahead, but it will be at the expense of the "corpuscular" Moners of poor Sponsie Number 2. "We shall see what we shall see."





CHAPTER VII.

DOCTOR AND MRS. HUBBS BECOMING TIRED OF SPONSIE—SAMMY'S APPEAL FOR THE LITTLE MISCHIEF-MAKER—HE IS ALLOWED TO STAY—AN AMUSING SCENE IN SAMMY'S CLASS—TALK ABOUT CORAL AND THE CAVITIES OF THE BONES—AFTER-CONVERSATION BETWEEN THE DOCTOR AND SAMMY—THE BOY BOUND TO KNOW IT ALL.



SAMMY was considerably disturbed by the monkey ghosts, as they are called, last night, and Mrs. Hubbs expressed herself at the breakfast table as rather tired of putting up longer with such a mischievous pet as Sponsie. The Doctor seemed to think that he was at the





bottom of all the disturbances which so often upset the family, and was more than half inclined to concur with his wife that Sammy might better take Sponsie to his own home or let somebody else have him.

All of which fell upon Sammy's ears very uncomfortably, for notwithstanding the fact that he was so much occupied with his patients, pupils, home work and studies, with little time to make a companion of Sponsie as formerly, he was nevertheless greatly attached to the little fellow, and preferred to have him remain where opportunities were the most favorable to bestow upon him some attention. When at his office in Twenty-seventh Street, Sammy hardly had time to say "How do you do" to his own folks, for his dispensary was exceedingly popular with the colored people, and his school in the evening was crowded with not only boys and girls, but with venerable people with gray hairs, who had had no educational advantages in their younger years. Sammy had indeed





made himself famous among the people of his neighborhood, by curing his mother of her paralysis by the application of electro-magnetism as he had seen Doctor Hubbs apply it for the restoration of his would-be-suicide, Sponsie, on a former occasion. He was therefore full of work, although his patients were mostly from the ranks of the young folks of his color.

After breakfast, the boy poured into the Doctor's ears a volley of his characteristic eloquence in favor of allowing Sponsie to remain in the family.

Mrs. Hubbs was not so far off that she did not hear every word of it, and she thought so much of the little practitioner that her heart was moved by the appeal, and she spoke over the stair-railing, saying :

"All right, Sammy, just as you say. Of course the Doctor can put up with Sponsie's mischief if I can."

"You would make a good lawyer," said the





Doctor with a broad smile, while looking into the interrogating eyes of Sammy, who was waiting for the response that should be given to Mrs. Hubbs' remarks. "You would carry the jury with you every time. You have won your cause in this instance."

"But I don't want to be a lawyer," quickly replied the boy. "If I can learn that which will make me a good doctor, I shall be satisfied."

"Well; there is no question about that, my lad," said the doctor assuringly. "I hear from your old friend, Mr. Johnson, that you are not only doing a great deal of good among your people by instructing them, but that you are having very fair success in your practice."

"I get cornered in my class now and then, though," responded the little practitioner, shaking his head. "For instance, last night, while I was trying to explain what you had told me about the corpuscular Moners, Pete Williams drew from his pocket a beautiful piece of coral, and asked me if





SAMMY'S EVENING CLASS.



I could tell him how it was made. To gain time for a little thought, I told the class that any member of it could have the first opportunity to reply.

"You should have been there ; it was too amusing for anything.

"Old Mrs. Burtell said 'her son was a sailor, and that he said it growed in the bottom of the sea just like cabbāgers growed in the Dutch gardens.'

"An old man whose hair was almost white with age, and whose whole frame shook with palsy, said 'that the little insecters build up them yar things, just as de bees build up de comb-er of de honey.'

"Young Diggles got up, and with a great flourish said that he 'accepted the doctrine ob eburlution, and dat he had no doubt but dat de coral beds wuz once de abodes of insect men an' women millions of years ago !' All the class laughed at this."

"Well, what did you say, Sammy ?" inquired the Doctor, shaking with laughter at the Diggles theory.





“After hearing a few more ridiculous explanations, thinking that I would not risk making a ninny of myself, I told the class frankly that I did not feel fully informed upon the subject, but that I would take pains to ascertain and let them know.”

“‘What, sir, is your present scientific impression, sir, Doctor Samuel Tubbs, sir,’ inquired old Mr. Johnson, who entered in time to hear some of the queer theories. Then I said :

“‘It is my opinion that the polyyps which create the coral, do so by absorbing limy matter from the sea, and that this limy matter goes to form the hard shells in which they live and die.’ All the class clapped their hands, and old Mr. Johnson said, in his usually positive way, ‘You are right, sir, very right, sir!’ Was I?”

“More nearly right than clear,” answered Doctor Hubbs, who considered that his pupil had acquitted himself pretty well in his capacity as a teacher. “Coral was once supposed to belong to the vegetable kingdom, and to grow like plants ;



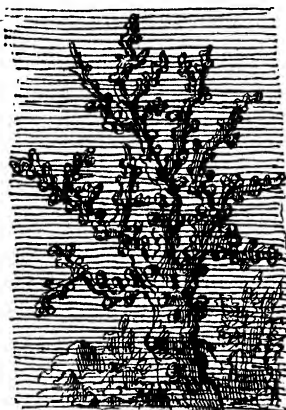


next it was given an intermediate place between the vegetable and animal kingdoms ; finally it was discovered that coral was formed by little jelly-like animals which were named polyps, and it was believed that they built their curious houses by actual effort. But it has since been determined that they have little mouths and stomachs, and that their food, whatever it may be, must contain a great deal of carbonate of lime. They take in their food by suction, and when they have extracted what they want from it, they expel the waste or useless material by the same mouth which has taken it in. This is a little in advance of the Moner's method, though quite like it. The Moners, you know, simply surround something nutritious, say a diatom, and, after extracting the useful matter, unroll themselves from what is left. But the polyps have stomachs of an inferior kind, and after taking food throw up what cannot be used. Their digestive organs seem suited to their purpose, however, for they secrete enough lime to





fill some fleshy external membranes therewith, and change them into that hard material which we find in the coral, a specimen of which Pete Williams showed to your class. Some of their beautiful



BRANCHING CORAL.

From Appletons' Cyclopædia.

structures have thus been created by millions of these little jelly-like creatures."

"And you think the corpuscles in the jelly-like fluids of the cells of our bones and flesh of our bodies are a good deal like them?" interrupted Sammy with an inquiring look.

"I am not quite sure that the white corpuscles or something like them exist in the fluids of the minute cells of the body," resumed the Doctor. "Huxley, however, tells us that corpuscles of similar structure are to be found





by the microscope in the skin, lining of the mouth, and scattered throughout the whole framework of the body; if this be so, it seems to me quite likely that they do exist in the minutest cells, and that just as the little polyps instinctively select the right kind of food from the sea for building their coral structure, these tiny corpuscles select from the continually circulating blood, which is as constantly supplied to them as sea-water is to the polyps, the qualities which will rebuild the particular bone, muscle, nerve, or other part, which they respectively occupy. Take a single supposed corpuscle, for example, located in the cell of the bone. It will take the food particle from the circulation



UPPER OBJECTS, POLYPS.

LOWER OBJECTS, CORPUSCLES.





which best suits its purposes, and proceed to put itself outside of it just as the Moner does when it encounters a diatom. As it is a bone corpuscle, its food would naturally be something possessing the properties of lime. As it absorbs this food, it may gradually become wholly or partly enveloped with a calcareous crust, which will take the place of some bony material which is becoming effete, breaking up, and passing away. As its crust takes its position, the corpuscle may pass out into the minute spaces left by the removal of the effete particles. Just before dying, it may reproduce other corpuscles to pass into the spaces to carry on the never-ending work which goes on so long as life animates the marvelous body."

"I always thought," exclaimed Sammy, "that the bones were solid, excepting the large ones, having long tubes filled with marrow!"

"If they were so," replied the Doctor, "they would tire you to carry them around. Besides the hollowness of many of them, they are, after pass-





ing through the hard outer shell, filled with open spaces, many of which are plainly visible to the naked eye, while the smaller ones are revealed by the microscope. The bones inside are indeed honey-combed with little cavities." Here the Doctor took from a shelf and opened a book entitled "Dalton's Physiology and Hygiene," in which was a picture of the thigh-bone sawn open lengthwise, explaining that only the white lines were solid bone, while all the dark places were cavities, the



THIGH-BONE.

long tubular one in the middle being filled with a soft vascular substance called marrow. Then turning to "Lambert's Human Physiology and Hygiene," the Doctor showed the boy a picture of a mass of curiously constructed bone looking like a sponge.





"Then you think the marrow of the bones and the jelly-like fluid which fills the small cavities are inhabited by corpuscular Moners which rebuild the bony framework a good deal as the coral builders produce coral?" interrupted Sammy.



"That's about it, my boy," and the Doctor was on the point of proceeding further when Sammy resumed:

"And you think the muscular cells have just such corpuscles, only so organized as to secrete the material of which muscles are made; and

ANOTHER SPECIMEN OF BONE. that the nerve cells may have just such builders with the ability to snatch from the circulation those particles of food which are adapted to the rebuilding of the nerve substance, and so on?" for the little practitioner and





teacher seemed intent upon getting at the real marrow of this subject as well as at the marrow of the bone. He wished to be able to convey the same information intelligently to his class, not one of whom I fear will be likely to understand it, although I feel tolerably confident that my young readers who have had better opportunities for mental improvement can do so. The kind of material that Sammy has to deal with in his evening class has already been exhibited in the picture, and the grade to which they belong indicated by the remarks which were made upon the polyyps.

The conversation between the Doctor and the little practitioner ended here, for the latter had to do up a good many chores before filling in his morning hours at what was now called the Johnson Dispensary. No such sign was up—nothing but the name of Doctor Samuel Tubbs, with the office hours thereon, in golden letters.

Some of my young readers may want to know what is the meaning of Dispensary. Well, I will





tell you : it is a place where the poor may have medical advice and medicine without paying a fee therefor. Such places are usually provided in large towns or cities at the expense of the taxpayers. But this one of Sammy's was supported by the generous head, heart, and pocket of his old friend, Mr. Johnson. Hence it became widely known among the colored people as "The Johnson Dispensary," and Sammy made so much of a reputation for success, not a few poor white folks found their way into it when overcome with colds in the fall and winter, or with summer complaints in warm weather.

We will close this chapter with a picture of white corpuscles, moners, and polyps, all thoroughly mixed up, and my young readers may see if they can pick them out and tell which is which.





CHAPTER VIII.

SAMMY KEPT AWAKE THE WHOLE NIGHT BY MONKEY GHOSTS—HE AND BRIDGET WILL KEEP STILL ABOUT IT—THE DOCTOR THINKS SAMMY'S BOOTS NOISY—THE TALK ABOUT THE VEG-ETATIVE NERVOUS SYSTEM—HOW SAMMY CAME TO KNOW ABOUT IT—SPONSIE HATCHETING THE FLOOR—HE BECOMES AN EXILE.



HE little practitioner is looking out of his back window and rubbing two pretty tired eyes this morning. He has been kept awake the whole night by the "monkey ghosts." The restless Sponsie Number 2, of whose imprisonment as yet he knows nothing, made a great deal of disturbance during the entire





afternoon of yesterday, but Sammy kept it to himself and prevailed upon Bridget not to lisp a word, for he knew Mrs. Hubbs, if she heard of it, would lay all the rumpus to the mischievous Sponsie, and again urge the abatement of the "never-ending nuisance," as she sometimes in a fit of impatience called the monkey.

For forty hours Sponsie Number 2 had been without food! The racket which he commenced in the latter part of the day yesterday increased as his appetite grew keener, and the way he rattled and banged about under the attic floor during the entire night, bumping his head, scratching the floor with his paws, and whining, was enough to have awakened the whole household, had not Doctor and Mrs. Hubbs been good sleepers. Bridget, affrighted, flew as usual to the kitchen, where she found Sponsie Number 1 quietly sleeping on her new ironing-blanket. This counter-irritation made the girl momentarily forget the annoyance which drove her from her own room.





What to do, Sammy was at a loss to determine, as he stood gazing out upon the snow-clad roofs. The air was filled with snow, some flakes going up, some sidewise, and others downward in a kind of helter-skelter way, as if burlesquing the unsettled condition of his own sorely-perplexed brain. One thing was settled in his mind, however, and that was to make no complaint about the disturbance which had deprived him of sleep and sent Bridget for about the fortieth time to the kitchen.

Although there was every evidence in his mind to convince him that his old companion, Sponsie Number 1, had nothing whatever to do with the hubbub, he knew very well the madam would say that if the monkey were out of the house, these mysterious noises, as well as any number of other constantly recurring disorders, would instantly cease.

While Sammy was putting on his clothes, the whining, bumping, tumbling, and scratching became so uproarious, he feared that the family





would be alarmed by the racket. Fortunately, the noises were mostly confined to Sammy's room; for had they occurred directly under Bridget's floor, Mrs. Hubbs would certainly have been aroused by the disturbance.

At the breakfast table the Doctor said :

"You seem to make frantic efforts in putting on your boots, Sammy ! How many pairs of double soles did you put on this morning ? and is it necessary for you to jump up and down with all your might to get your feet well into them ? "

The boy looked up dumbfounded into the Doctor's genial face as he observed the questions were asked in the best of humor, and gave a forced smile in return ; in doing so he betrayed his red and tired-looking eyes.

"What's the matter ? You look as if you had been crying," said the Doctor.

"Oh, not much the matter," replied the boy, with lips quivering not a little with agitation.

Both the Doctor and his wife at once mentally





concluded that he had been having some further trouble with Bridget, and did not pursue the inquiry.

After the family breakfast, Sammy partook of his with a heavy heart, and then passed up into the office-room to complete some work he had commenced before the breakfast-bell rung.

While the boy was polishing the surgical instruments, the Doctor looked up from the desk at which he had been writing, and remarked :

“Sammy, you have got to a point now where you could tell your censor, Doctor Winkles, if he should ask you, not only all about digestion and absorption, but, quite likely, how the elements of food are converted or changed into nerve, flesh, muscle, cartilage, and bone. But supposing he should ask you what keeps your heart, lungs, stomach, and all your vital organs active when you are asleep as well as when you are awake, what would you tell him ? ”

“I should inform him,” confidently responded





Sammy, picking up and rubbing a silver stethoscope with unusual activity, "that it was force supplied by what was called by Harvey the Vegetative, and, by Bichat, the Organic Nervous System."



SPONSIE HAS SOME IMPORTANT
BUSINESS ON HAND.

The Doctor looked at the boy with astonishment for a moment without uttering a word, and then simply said: "You'll do, Sammy," and pretended to resume writing. But this was purely a pretence, for he only made marks having no signification, while wondering to himself how the boy managed to pick up this

information without aid. After scribbling and meditating awhile, he brushed the paper aside, turned his chair on its castors so that his eyes could rest fully upon his precocious pupil, and asked:





"Pray tell me where you found out about the Vegetative Nervous System, my boy? You have had scarcely a moment that you could have given to study lately."

"Last night," replied the tired-looking lad, "I could not sleep much, so I took the August number of Appletons' Popular Science Monthly, which was mistakenly thrown into the waste-paper box, and read an article upon the Physiology of Sleep, by Dr. Richardson."

In explanation it should be said that Sammy accidentally found this, to him, interesting number of the Science Monthly, in turning the waste paper box bottom side up, in expectation of finding the animal or thing which was making such a hulla-balloo. At one moment, when Sponsie Number 2 was directly under that part of the floor whereon the box was standing, it did sound to Sammy's ears as if the noises proceeded directly from the box. As the boy had already overturned nearly everything else in trying to solve the mystery, he





took to his bed with the magazine, and for a time was as oblivious to all the inexplicable uproar as if he had been reclining near a cascade or a babbling brook in summer time, with the same interesting matter in hand.

"Dr. Richardson says," continued the boy, "that the muscles which keep all the vital organs in a state of activity have a special structure, and that the nervous organism which keeps them in action is also a distinct organism. He says there are two nervous systems: one locked up in the bony cavity of the skull, and extending down into the bony tube of the spinal column, with nerves coming out therefrom to act upon various muscles; and another lying within the cavities of the body, with nerves branching out like so many rootlets, for the purpose of acting upon all those muscles which are not controlled by our will."

"And did he give you the names of these nervous systems," asked the Doctor, who exhibited some dissatisfaction that this number of the



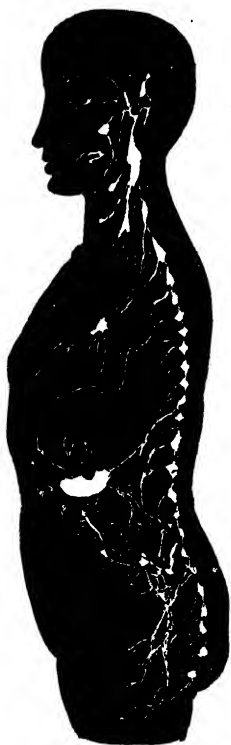


Monthly should have got into the waste-paper box, and that too without his even having seen it.

"Yes, sir," promptly answered Sammy, thinking for the moment that he was telling the Doctor something he had never heard of before.

"The first of these systems, Dr. Richardson said, consisting of the brain, the spinal cord, and the nerves of sense, sensation, and motion, is called the cerebro-spinal, or voluntary system of nerves; the second, consisting of a series of nervous ganglia, or nerve knots, with nerves which reach out to the involuntary muscles, and communicate with nerves of the voluntary kind, is called; after Harvey, the Vegetative, and after Bichat, the Organic System." At this juncture, Sammy ran to his room and brought down the magazine, so that he might show to his preceptor a picture of the Vegetative or Organic System as therein given. For the benefit of my young readers, I will present the picture here. The white lines represent the nerves of the Vegetative System, and these are the ones





VEGETATIVE NERVOUS SYSTEM.

which never for one moment sleep, but which keep at work unceasingly as long as you live, in carrying on the activities of those organs which nourish your body and sustain life in you. When they go to sleep, you will go to sleep forever, so far as your visible or material being is concerned.

“This system of nerves is quite commonly called by modern physiologists the sympathetic nervous system, because it is believed that through it is produced a sympathy between the affections of





distinct organs ; but the name given it by Harvey is to my mind the most suggestive," remarked the Doctor, " although it may not at present be sanctioned by usage. For these nerves sustain about the same relation to the animal body that the roots of a tree do to this vegetable product. Destroy the power of the voluntary nerves, and even cut away portions of the brain, and the human body would continue to live just about as the plant or tree does. In the vegetable world life and growth are sustained by certain organs and functions which supply nutrition, and sufficient motion in the nutritive particles to promote both.

" In the animal body," continued the Doctor, himself greatly interested in what the boy had related, " the vegetative nervous system (or as called by Bichat the organic, and by others the sympathetic) gives activity to the organs and vessels which circulate the blood ; furnishes the stimulus whereby the lymphatic vessels and villi keep up their absorbing and circulating processes ; controls





those organs and vessels which take charge of the waste and dying matters of the body, and assists in throwing out many of the effete matters. This system of nerves is indeed that which takes pretty much the entire care of the rebuilding work of the body, a sort of 'boss,' overseer, or director."

"Are these white lines in the illustration all there is of it," inquired Sammy.

"Bless you, no!" exclaimed the Doctor, finding that the boy had reached the bottom of what he knew about the vegetative nervous system. "There are two chains of these nerves and their knots as you call them, one on each side of the spinal column. As the article in the Science Monthly remarks, they are not like the cerebro-spinal system locked up in a skull or in the bony cavity of the spinal column, but are in front and on each side of the latter.' The prominent knots with their connecting nerve fibres extend from the neck to the end of the spine. They remind me of a strawberry plant which sends out fibres which take





root, which fibres send out still other fibres also taking root, till there is a whole bed of them, connected together by a net-work of fibres. So the Vegetative System of the human body after extending through the entire trunk, reaches out in every direction in every part of it, and has its similar rootlets or ganglia as they are called in the remotest parts, all of which are connected from beginning to end by little nerve fibres. While these rootlets or ganglia receive their nutrition and material for rebuilding from the blood circulating



STRAWBERRY
PLANTS PULLED
UP BY THEIR
ROOTS.

in the tissues about them, they serve in return as conductors of that nervous stimulus which keeps the blood in circulation, the vital organs in a state of activity, and all the 'corpuscular' moners industriously at work. It would be as difficult for the pencil of the artist to trace their minute threads on paper, as





it is impossible to follow their delicate fibres in the body, even by the aid of a microscope. With this useful instrument they can be tracked to all the prominent parts, but sooner or later, under the most practised eye, they are lost sight of by the dissector. They are —”

Just here the conversation was interrupted by Mrs. Hubbs bursting into the room almost breathless. “Do run up into the attic just as soon as you can. I should think Sponsie was tearing the house down.” And as all three started upstairs, she continued: “I have heard the strangest noises up there since breakfast that the little pest has ever made. I should suppose that somebody was cutting him up alive, while half a dozen undertakers, with hammer and nails, were getting a rough box ready for his burial.” On reaching the family floor, Mrs. Hubbs turned into her room, saying as she did so, “I am actually afraid to go up there myself, for I cannot for the life of me imagine what is going on.”





As the Doctor and Sammy ascended, a hubbub equal to that heard in a lively carpenter-shop filled their ears, and as they opened the door, there sat Sponsie, working as hard as he could with an old



SPONSIE'S FRANTIC EFFORT TO RELIEVE HIS PRISONER.

hatchet, cutting a hole through the floor. He was so intent upon his work and making so much noise that he did not notice the arrival of the Doctor and his young master.

Sammy rushed behind the monkey and seized





the hatchet by the handle, just as it was descending. This frightened Sponsie to such a degree that he leaped at one bound from the floor to small shelf over Sammy's door, and, looking down from this safe perch into the faces of the intruders, he quickly saw that they were perfectly furious with displeasure at his bungling mechanical work.

Well, no wonder ! Sammy's nice oil-cloth, put down not many weeks ago at his own expense, was raggedly cut through for the space of more than a foot square, and the splinters of the floor, which had pretty well resisted his dull hatchet, lay scattered about in a way to make the damages look more serious than they really were. Nevertheless, he had succeeded in making an aperture large enough for a good-sized cat to squeeze through.

"What," exclaimed the Doctor, "could have possessed that monkey to come up here with that dull hatchet, and attempt to cut a hole through the floor !"





"Well—I—don't—know!" responded Sammy in a measured tone of woful discouragement, for he felt that now Sponsie was a doomed monkey, and his apprehensions were well founded, for Mrs. Hubbs, who had been listening at the door, now put in an appearance with the exclamation :

"Well, I do declare, Sammy, it is of no use to try to keep this house in peace and order while that everlasting bunch of botheration remains here. You must take him home with you when you go to your office this morning."

"I think, too, you had better do so," joined in the Doctor. "We have had some pretty troublesome experiences resulting from his voluntary and involuntary nervous systems this winter. In brief, nature seems to have combined an unusual supply of organs and forces in his troublesome skin for turning the house topsy-turvey."

Sammy ventured little in reply, for there was nothing to be said in defence of the mischief-maker ; so placing the waste-paper box over the hole





in the floor, and taking Sponsie from his perch to the kitchen, he went with a heavy heart to the work which he would have to complete in an hour, in order to be on hand at his office at ten o'clock.

The work accomplished, he proceeded to look for a rope to tie around Sponsie's neck, for he did not dare attempt to carry him so far without one, lest he should slip out of his arms, and in his fright scamper away.

"Here, take this wan," said Bridget, throwing out a piece of old clothes-line from the tin closet.

Poor Sponsie looked guilty enough, I assure you, as Sammy was tying one end of the rope about his neck; I may say frightened, too, for he had not had such a thing on his neck since the time he attempted suicide; and he did not know but that Sammy was going to hang him now. His sad eyelids drooped and his tail quivered with agitation. As the boy gently gathered him up in his





arms, he felt somewhat easier, but he was so limp with either fright or shame, that his head bobbed up and down with every step that Sammy took, as he passed the kitchen window.

Bridget, who professed great sympathy for Sammy, as he was getting Sponsie ready to go, broke out as the two passed by with, "Good-riddance to ye, Sponsie Tubes; an' faith an' may the ghosts ov yer gran'-father an' gran'mother an' all yer brothers an' yer sisters an' yer cussins



THE ROGUE'S DEPARTURE.

an' neffees an' neeces under the attic flure, foller ye!" And, notwithstanding the girl had always claimed that Sponsie had nothing to do with the midnight rumpuses in the attic, she seemed to feel confident enough that the





ghosts would depart with him, to carry her bed-clothes up to her own room, with the evident intention of sleeping there that night.

Doctor and Mrs. Hubbs felt real sympathy for Sammy and Sponsie, as they watched them from the office window, and greatly regretted that it should seem necessary to send the troublesome pet away. "Maybe we will let him come back again by and by," remarked Mrs. Hubbs to the Doctor, with not a little agitation; and as the latter looked into his wife's eyes, he saw a few little glistening tears stealing down her cheeks.

"I will wager anything you will want that little pest back again in less than a week," exclaimed the Doctor, in a laughing manner.

"Maybe I shall," replied Mrs. Hubbs, who did not relish being laughed at, and went to her room in something of a pouting and weeping mood.

The Doctor followed and begged pardon for having exhibited levity when she was feeling so badly, and with the promise that he should inter-

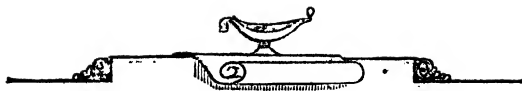




pose no objection to her having her own way about it, whatever she might choose to do, after having the mischievous creature out of the house for a few days or weeks, he returned to his office to write out some directions for a patient whom he was expecting that morning.

It should be added in extenuation of Mrs. Hubbs' conduct on this occasion, that she had not fully recovered her nervous strength. When the nervous system is deficient in that quality which we call nervous force, the mind is never quite well balanced. Persons so affected are apt to be whimsical, fickle, and peevish.





CHAPTER IX.

ANOTHER FEARFUL NIGHT OF UPROAR—EVERY-BODY IN THE HOUSE AROUSED—THE MYSTERY OF THE MONKEY GHOSTS SOLVED—THE CONVERSATION ABOUT THE VEGETATIVE NERVOUS SYSTEM AND THE LUNGS—SPONSIE NUMBER 2 SUPPOSED TO BE DYING.



WHEN the hour for retiring came, Bridget and Sammy ascended to the attic with the utmost confidence that the night was to be a quiet one. For, although Bridget's superstition led her to imagine that the house had been haunted with monkey ghosts, she believed that they were attracted there by the presence of the





mischievous Sponsie. And Sammy, who knew very well that in numerous instances the noises had occurred without any apparent aid from his monkey pet, seemed to think, without being able to explain to himself why he thought so, that with Sponsie in Twenty-seventh Street, he should be able to sleep without interruption from such strange sounds as had time and again proceeded from all quarters of his room. Nevertheless, be it said, he would rather have put up with all these discomforts than to have had his mischievous companion banished from the premises.

As Sammy was undressing, there were what a doctor would call some premonitory symptoms of approaching hubbub, which greatly surprised him, and Bridget came flying to his room robed in only night-gown and shawl, and with eyes glaring with fright, to know if he had heard that whining and scratching again.

The boy, replying that he did hear it, professed to feel no anxiety about it, saying it was un-





doubtedly the rats. So Bridget returned to her room, and all were soon in their beds.

A protracted lull occurred, in which all fell fast asleep. Sammy, not having rested any the night before, entered into a state of unconsciousness which would have seemed like death itself, had not the vegetative nervous system kept his heart and breathing organs in natural activity, and all the vital processes in motion as when awake.

At about twelve o'clock he was aroused from his sound sleep by the presence of the Doctor, Mrs. Hubbs, and Bridget in his room, turning over boxes, and opening closet doors, and ransacking about generally. As he was returning to the conscious state, he heard Mrs. Hubbs exclaiming:

"How Sammy can sleep with all this confusion going on about him is a mystery!"

She had not quite concluded this sentence when Sammy, raising himself up in bed, and rubbing his surprised eyes, inquired: "What—what's the matter?"





"Matter? matter enough!" replied Mrs. Hubbs in a tone partaking not a little of anger. "Why did you bring that little pest back with you last night?"

"I did not bring him back with me," meekly



SAMMY'S MIDNIGHT SURPRISE PARTY.

answered Sammy, getting up, notwithstanding the presence of all the folks in his room, and putting in his drawers.

"Then didn't he follow you back?" inquired the Doctor, with a look of astonishment.





"I am sure he did not," replied the boy in a confident tone.

"Well, he's got back somehow," responded Mrs. Hubbs, excitedly, "and he has been tearing around up here as if he had a cat-fit. We must look about till we find him."

Notwithstanding all the strange circumstances which had occurred in and about the attic when Sponsie had absolutely been known to be in the kitchen below, and which seemingly could not be reasonably attributed to him, all appeared to take it for granted that with Sponsie out of the house, everything would go on orderly and quietly. In some way, however remote, they believed the little meddlesome creature was at the bottom of all the disorders which had afflicted the household since he became a member of it.

From Sammy's room the Doctor and his wife, followed by Bridget muttering, and by Sammy with his teeth chattering with nervousness and cold, proceeded to the dark closet, and the key





having been obtained, that was thoroughly overhauled. Bridget's room was more thoroughly searched for a second time. During the presence of this reconnoitring party the noises entirely subsided, for Sponsie Number 2 feared that Sponsie Number 1 was a member of the party.

The hunt proving fruitless, all returned again to their beds, and in a little while everybody was once more napping, excepting Mrs. Hubbs, who had been too much annoyed to compose herself readily.

Almost as soon as the loud breathing recommenced, for all the doors of the occupied rooms had been left open after the fright, so that Mrs. Hubbs could distinctly hear it as first Sammy, then the Doctor, and finally Bridget fell asleep, the inexplicable running, scratching, and whining were resumed. What to do she knew not. The Doctor had retired after an unusually busy day, Sammy had not slept the night before, and to awaken Bridget was like setting fire to a fuse leading to a blast of rocks.





After keeping still while all this racket was going on for fully an hour, during which she became so frightened that she trembled all over from head to feet as if in a chill, the loud shrieks of some animal broke upon her ears, and penetrated those of the sleepers with such violence as to cause every one of them to spring from their beds in an instant. In a moment more all were again in Sammy's room, the Doctor, Mrs. Hubbs, and Bridget, and all, including Sammy, were standing in their night-clothes, dumb as mutes around the hole Sponsie had cut in the floor, through which protruded the head of a monkey, which was twisting and screeching in a most terrific manner, in an attempt to get out of a tight place by either passing through or withdrawing.

You see when the family were up in the room before, looking about, they left the waste-paper box off the hole where Sammy previously placed it, and when all was quiet, the monkey prisoner, Sponsie Number 2, which you know all about, but





of which the family were profoundly ignorant, made an attempt to make an escape from his confinement under the floor, where he was literally starving to death. With much effort he squeezed his head through the aperture, but his bony shoulders were too large to follow. Finding that he could not get through the hole, his next effort was to get back, but he was "in a fix," and like any other scared monkey he set up the most deafening shrieks.

I need not tell you that to the family the monkey mystery deepened. As soon as any one could speak, Bridget declared that it was a monkey ghost, and if they would all go downstairs into the kitchen it would disappear without help. Mrs. Hubbs believed Sponsie had got back to the house by some outside passage, and climbed up between the walls to the floor where he knew Sammy slept. She even believed that Sponsie instinctively foresaw that he was to be banished from the house, and had made an opening some-





where outside, and had then proceeded to make this one inside, so that he could return when he wished to. "What else," she inquired, "could have possibly been his object?" The Doctor thought the face looked like that of Sponsie, and that perhaps he had effected an entrance through some place outside where the bricks had been loosened, but he did not believe that a monkey possessed the prophetic foresight attributed to the animal by Mrs. Hubbs. Sammy declared that the face of the prisoner who had his head in the stocks looked more like that of the monkey he lost than it did like that of his old companion. But even Sammy did not deem it probable that it was Sponsie Number 2.

An axe was brought up from the cellar, and the board in the floor was as carefully removed as possible, for the little fellow whose head was protruding through it was suffering terribly. When the board was raised and the monkey was disengaged, he crept out as if utterly exhausted, and his body





was as thin as that of a dog after having had a 'six weeks' distemper.

Immediately he was recognized as the long-lost monkey! There was no question about it! Marks which had been discovered in trying to find out if it was the original Sponsie when he was first brought to the house by the backwoodsman, on close examination, were found to correspond exactly with what were observed then.



Besides, he was in just about as wretched a condition now as then, and looked precisely like the same fellow!

I will not attempt to tell you of the conversation that passed between Doctor Hubbs, Mrs. Hubbs, Sammy, and Bridget, as each expressed some





theory in regard to the wonderful mystery. Of one thing all felt positive, after some discussion, namely: that the mysterious noises which had been attributed to monkey ghosts proceeded from this imprisoned monkey. The Doctor, too, seemed to regard it as altogether possible in the light of curious events that Sponsie Number 1 had been in the habit of sharing his provisions with Sponsie Number 2 in the dark closet till the hole in the floor of the closet had been closed up. The closing of the closet, and the hunger of the animal which must have followed, seemed likely, in his opinion, to have occasioned the late unusual disturbances, and the lesser ones which had previously occurred from time to time.

"And if this theory is correct," concluded the Doctor, "it may be that Sponsie's late attempt to cut a hole in the floor was made for the purpose of reopening communication with his prisoner. Monkeys are strange creatures!"

It was so late by the time the nearly starved





monkey was provided for, and the strange event talked over, that it was concluded best not to again retire. Some time had passed since the clock struck six. Each one therefore dressed, and began his and her accustomed duties. While Sammy was taking the books from the library shelves for the purpose of dusting them, the Doctor walked in. "That monkey must have suffered intensely for the past day or two," he remarked. "There is no suffering that can much surpass that of unsatisfied hunger and thirst. When any animal, human or brute, is denied food and water, the rebuilding processes going on in the bone, cartilage, muscle, nerve, etc., of which we have been talking, must slacken, and by and by cease altogether. You cannot build a house or repair one without material; nor can the little body-builders go on with their work without being provided with the necessary substances which come to them through the blood from daily supplies of food and drink. Without such supplies our little 'corpuscular'





polyps are all reaching out for food particles, which the blood no longer provides. The absence of them is made known by telegraphic messages sent through the vegetative system or sympathetic



telegraph from every little builder scattered through every square inch of the individual, and these messages are received at the head-quarters, the brain, and the brain communicates them to the stomach, from which the call for supplies seems to proceed, although in point of fact every atom of the body is suffering from the famine, and calling loudly for aid. The old atoms are perish-

CORAL POLYPS
REACHING OUT
FOR FOOD.

ing, and nothing is coming forward to make good their loss. Besides causing great bodily suffering, one of the most dangerous arrests of physical activities is that of the interchange between tissues and blood. It is just as fatal as the cessation of the heart's action."





All of this was interesting to Sammy, but he had determined the next time an opportunity offered, he would ask the Doctor something about the breathing organs, and about what they had to do with sustaining life. He already knew the necessity of having air to breathe, and he had some vague idea of the construction of the lungs, from having seen the plates illustrating them. But after learning so much about the food and the various changes it underwent after it entered the mouth he believed he had much to learn about the part the air performed in sustaining life. So, as quickly as the Doctor concluded the last remark, the boy inquired :

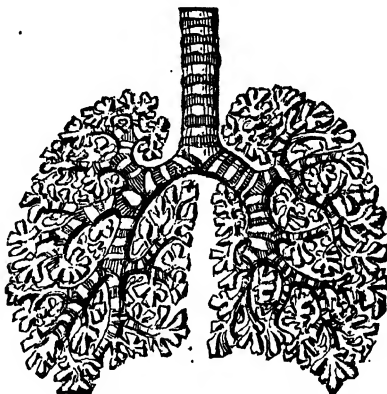
“Is not air just as important as food and drink ? ”

“Why, Sammy, you could not live many minutes without it,” exclaimed the Doctor. “Air ? why every breathing thing must have it every moment. Whether the interchange between the blood and tissues, in rebuilding the body, is carried





on by corpuscles or otherwise, the little body-builders, whatever they are, must all be supplied with the vital properties of air or they will stop working and expire. Workers in deep mines are



THE BREATHING APPARATUS.

supplied with fresh air by machinery which conveys it from without to the deepest and darkest caverns wherein they labor. I have seen great ships arranged with an immense tunnel-shaped canvas for conveying air to the persons in the





hold of the vessel. Now, as you will perceive, we are provided with a perfect apparatus for conveying the vital properties of air to all our little body builders."

"Look here," he continued, opening again "Dalton's Physiology and Hygiene," and showing the little practitioner a fine cut of the larynx, trachea, bronchial tubes, and the lungs, and their lobules. "Here," said he, "is a picture of the apparatus to which I referred. At every breath we take in a quantity of air which passes down the throat through the various pipes you see in the illustration, till it reaches those little white spaces called lobules, which contain vessels for receiving the air, and bringing it so nearly in contact with the blood, that the latter takes from it the properties it needs. Only a very thin, delicate membrane prevents the air from coming in direct contact with the blood, and this membrane is so constructed, that it does not so much impede the communication between the two, as a lady's veil ob-





structs the reception of the air through it to the mouth of the wearer.

“ At every round of the circulation,” the Doctor went on to say, laying down the book, “ the blood is sent to the lungs for an airing, and then it goes on its way distributing its vital properties to the millions of little body-builders who are at work in all the hidden places, from the crown of the head to the ends of the toes. No miners working in the deepest caverns of Mother Earth, are provided with so complete an apparatus for perfect ventilation as this one which is supplied to the human system. Its construction and action are so complete that it is capable of exchanging with the atmosphere around us between two hundred and three hundred and fifty cubic feet of air every hour ! ”

“ And what is that vitalizing quality in the air of which you speak ? ” inquired Sammy, beginning to feel that there was no end to the questions that could be asked about the human system, and the various conditions necessary for its support.





"That which is necessary for the support of animal life," replied the Doctor, "is called oxygen."

"Oyxgen! what's that, Doctor?" asked Sammy, who felt like one who seeks the dictionary for a word, and on finding it, is referred in the definition to another, which, in turn, refers him back again to the one first sought.

"Oxygen," replied the Doctor, laughing at Sammy's perplexed expression, "is one of the gases of which the air is composed. Latest analysis tells us that the air is composed of 23.2 per cent. of oxygen, 76.7 per cent. nitrogen, and about 0.1 per cent. of carbonic acid. It is the oxygen which all the little bone, muscle, and nerve-builders need to keep them in working order in the minute cells which they inhabit away from direct contact with the air which surrounds the outside of the body in abundance."

"Well, I begin to understand this," said Sammy, looking down and remaining perfectly silent for some moments.





The Doctor was about to resume, but seeing by the motions of the boy's face that something was working in his brain which would soon find expression, he waited, with a quizzical look playing upon his features, and which the boy would have understood, had he looked up. Finally, Sammy exclaimed, as he glanced thoughtfully over his whole body, and passed his hands over his chest and stomach:

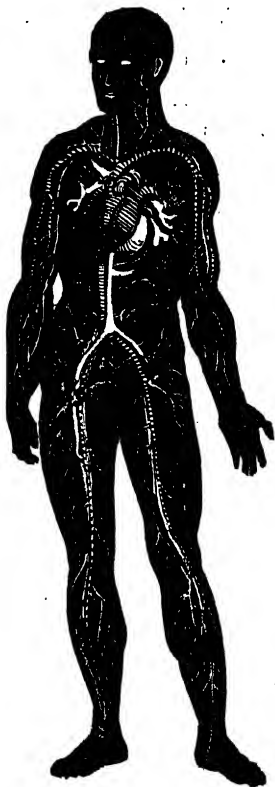
"What a curious piece of machinery this is! I think I see how it is," continued he, after a pause and with some moderation, as if the new information had not yet fully adjusted itself to his mind. "The Vegetative Nervous System," he added, after some moments of hesitation, "keeps the heart, arteries, capillaries, and veins in constant motion for the purpose of moving the blood through every part of the body, and as it goes its constant rounds, it loads up with provisions at the docks of the villi, and from the supply ships of the Lymphatic System, and then in the wide har-





bor of the lungs, it loads up with oxygen, all of which it carries out as rich freight to the little builders in every part of the body."

"Bravo, young man!" exclaimed the Doctor. "I really could not have presented the matter better than that myself. Now," he added, "if you will let your imagination carry the explanation a little farther, you may say that the little builders empty all their chips and shavings, and all the dead and useless matters which are being removed into the same currents



THE BLOOD CARRIERS.





of blood, and that these currents moved along by the Vegetative Nervous System, acting upon their canals, bear the waste matters to various dumping grounds provided in the system, from which they are conveyed away by what are called the eliminating organs."

The Doctor was on the point of resuming, when a loud and excited rap at the door arrested both his and Sammy's attention. Sammy flew to open it when Bridget, coming in full view, exclaimed :

"Shure an' thot munkey ye dug out ov the flure is afther takin' his last gasp. Be me sowl I belave he'll be did before you can get to him."

Both the Doctor and Sammy had had too many frights in times gone by at the frequent and alarming attacks of this particular monkey, to feel greatly startled, so that they proceeded at no quicker step than usual to the kitchen, Sammy remarking, as they descended the stairs :

"I guess if he could live under the floor, where there is so little pure air, for months, and





doctor himself when sick without anything to do it with, he can manage to hold out a few months longer above the floor, and with our care."

Reaching the little sufferer, he really did look as if he was struggling to breathe at all.

"Of course he will die if he stops breathing," remarked Sammy with a smile, for he had forgotten how greatly he had been attached to the little fellow, when Sponsie's whereabouts were unknown. "Those little body-builders down in his toes and tail will not have oxygen, unless he keeps that ventilating apparatus up there"—pointing to the monkey's chest—"in running order."

By this time the Doctor could not resist a burst of laughter at Sammy's odd remarks, for he was not only amused at his quaint way of expressing all that he had just learned, but greatly pleased at the boy's proficiency in the subject of respiration, as the act of breathing is properly called.

"Ah! the poor crather!" exclaimed Bridget, taking the gasping monkey into her arms from a





box of cotton and straw, in which he had been lying, and swaying her body back and forth, as if rocking him : " It's cruel, so it aise, to be laffin at ye in yer death struggles ! " This act on the part of the girl aroused Sammy's slumbering sympathies, and also made the Doctor feel that it was not right to indulge in merriment, when even so humble an individual as Sponsie Number 2 was struggling for breath. So both the Doctor and the little practitioner at once proceeded to ascertain what was the matter, and to administer something to afford relief.





CHAPTER X.

SPONSIE NUMBER 2 RECOVERING—HIS PECULIAR ENDURANCE ACCOUNTED FOR ON PHYSIOLOGICAL PRINCIPLES—PEOPLE DIE BEFORE THEIR TIME—THE REASON—THE DEATH OF THE BACKWOODSMAN—HIS WIDOW WANTS NINETY DOLLARS—SHE STARTS FOR HOME WITH THE INVALID MONKEY.



WID he die? I knew this would be the first question asked by my young readers, with a peculiar emphasis on die, when I resumed my story. Some of you feel serious, others of you are biting your lips, and half laughing, while awaiting my reply, and a few of you would be so much pleased to go to a monkey's





funeral, that you hope I will be obliged to reply Yes.

But the truth must be told. Sponsie Number 2 still lives. This monkey is like a great many people in the world who are always supposed to be near their graves, as year after year rolls on, and they bury, one by one, all their fat friends and relatives to the forty-ninth cousin.

And what do you suppose is the reason of this? I will tell you a secret which Sammy has not yet found out. Such people have very great vital tenacity. And what is vital tenacity? Vital tenacity is a strong hold upon life. And upon what does this strong hold on life depend?

Well, you follow me up pretty closely with questions, and I may yet get more badly cornered than ever Sammy has been. But I think I can thus far answer you. It depends upon the strength of the vegetative nervous system, which the Doctor has been talking about. I believe, too, that this nervous system derives its strength from cer-





tain forms and qualities of the brain, with which it is connected by certain fibres communicating indirectly with it, and with the cerebro-spinal system; and that the base of the brain, that is, its lower part, from the face to the

back of the skull, sustains the same relation to the vegetative system that the soil sustains to the tree. If the soil in which a tree is planted be not deep, it is easily blown over and destroyed. If the base of the brain, in which the vegetative nervous system is



by its communicating **A BRAIN WITH A DEEP AND BROAD BASE.**

fibres rooted, be not deep and broad, the breath of disease easily blows out the flame of life.

The late Prof. Wm. Byrd Powell, of Kentucky, and Doctor T. S. Lambert, of this city, have given





in essays and lectures certain measurements of the brain for determining the vital tenacity of any individual, and my own observations for many years lead me to believe that their rules for ascertaining it are mainly correct.



A BRAIN WITH A NARROW
AND SHALLOW BASE.

But whether or not science has discovered this secret, every one must believe that there is such a quality as vital tenacity, and that some persons possess it more than others. When a person is largely endowed with this quality, he is enduring and generally long-lived, whether he be fat and healthy-looking, or lean, lank, and sickly in form and feature. When, by bad habits (moral or physical), recklessness or bodily wounds, such a life is cut short, the struggle is fearful.





“Then you think,” I imagine that some of you inquire, “that there are those who die before their time?”

In answer I must tell you that most people do. All die before their time who go out by painful inches, or who are subjected to protracted suffering before the spark of life is completely extinguished. Properly taken care of, every organ and member of the body should live as long as the vegetative nervous system is able to perform its work, just as every tree should live so long as its roots in the soil and leaves in the atmosphere can supply the trunk and branches with their necessary nourishment. When, by some inherited local defect, bad habits in eating and drinking, recklessness or exposure, a conflict is brought on between some organ or part of the body and the vegetative nervous system, and this conflict is not reconciled by what are called the recuperative powers—which are the products of the various sets of nerves acting together—the struggle goes on, and a very





painful one it is too, till death comes to the relief of the sufferer.

"Then would you say," some one may inquire, "that a person dying at eighty years of age, with a long and painful sickness, might have lived till ninety or one hundred if his body, in other respects, had been as strong as his vegetative nervous system?"

"Certainly—most 'certainly," I must reply. "To my mind it would be positive evidence that the old man died before his time if his last days or years were attended with much suffering."

"And do you think he could have avoided a painful death?" I think I hear you once more inquire, determined, like Sammy, to get at the bottom of any new idea.

You have now come to an important question, and one which deeply concerns all my young readers, and I hope the Doctor will some time tell Sammy just what I am now telling you. I must answer that it is altogether probable that the





old man could have avoided a painful death if he had commenced early, when he was no older than you are, to take proper care of himself. There are said to be exceptions to all rules, and there are doubtless exceptions to this one which are entirely explicable; but as a rule, having but few exceptions, if you young people would diligently pursue studies which would impart to your minds a knowledge of your own bodies, and then in the light of such knowledge you should avoid all practices calculated to injure health, you would live till the vegetative nervous system had lost all its vitalizing force, and then you would pass away with hardly a struggle—come to a sudden termination like the Deacon's "One Hoss Shay," as related in the celebrated poem of Oliver Wendell Holmes. Some people die in that way now. All such have not died "before their time," whether they have departed at twenty, forty, or eighty. But depend upon it that a man living to be one hundred years of age, who finally comes to his last illness with





torturing and protracted pain, dies, even at his advanced age, months, if not years, before his time

Ah! I shall have to stop here. I intended in this connection to have told you some more about Sponsie Number 2 and his illness; but just now a middle-aged countrywoman is coming up the Doctor's steps, and we must indulge our curiosity by seeing what in the world she wants. She tries the door and finds it locked, looks up to the windows to see if the folks are away—stands for a moment looking at the brightly polished door-knob, and wonders what it can be for, and finally raps with her knuckles as hard as she can. She raps again and again, as if her knuckles were made of naked bone, instead of a combination of bone, muscle, cartilage, blood-vessels, and nerves.

"What d'ye want there, old 'oman?" sung out a little disrespectful urchin who stopped to watch her motions, with a face beaming with humor through a deep coating of dirt, like a lost emerald projecting from a lump of mud.





"Is these folks away from hum?" she inquired, with a strange-looking, pinched countenance staring wildly out from a flaring old-fashioned bonnet, as she turned her attention to the lad.

"Away from hum?" repeated the boy, with a peculiar jerk of the head, amused at the strange picture before him. "Why don't ye try that there bell and see?"

"Bell?" muttered the woman, confusedly looking all around her on the steps and on the railing,



as if she expected to find the handle of a dinner-bell which she could lay hold of. "What bell?" inquired she, turning the flare of that bonnet once more upon the urchin.

"This 'ere bell here," replied the boy, running





up the steps and giving the knob an alarming jerk.

Sammy ran to the door, expecting to find some nervous messenger in quest of a doctor. And here let me remark that attending door-bell had come to be Sammy's work again when in, and Bridget's duty when the little practitioner was away. Various boys had been tried, but all had some fault which disqualified them. The reason we have so many inefficient men in all departments of life is because we have so many inefficient boys, who think there will be time enough to acquire good business habits when they can make such qualities immediately profitable. They do not realize that character is forming gradually, just as their bones, muscles, nerves, and other physical qualities are shaping, and that the little by little which they add to their mental and moral characteristics during childhood must in the end constitute the—MAN! But the woman and Sammy have entered the office, and we will listen to what is said.





"And so your husband is really dead!" exclaimed Sammy in a sympathetic voice, for he found that this was the widow of the backwoodsman who brought him Sponsie Number 2.

"Yes, he's dead," replied the woman, wiping her tearful eyes with a red cotton handkerchief. "He died of par-ral-is-is. The doctor said he smoked too much terbaccer, an' I guess he did too, for he was never without a pipe inter his mouth, 'ceptin' when he was ter sleep, an' then he allers kept his lips a-goin', jist as if he thought he had a pipe twixt 'um."

"I guess you mean paralysis," said Sammy, not quite catching the term as given by the woman.

"Yes, pa-ral-e-sis; that's jist what the doctor said it was," rejoined the woman, still failing to give the name of the disease the proper pronunciation.

"Jist afore he breathed his last he said, 'Ninah, git that ere ninety dollars or bring hum the critter.



Them York fellars is so sharp they won't mind wrongin' a poor widdy.' He had ter work so hard ter say this, he began ter gasp, and then all was over." Here the poor woman again grasped her



THE BACKWOODSMAN'S WIDOW.

handkerchief, and, pressing it to her eyes, sobbed violently.

"Then your husband passed away easily at last, did he?" inquired Sammy, feeling almost like weeping too.





"He did—he did," replied the heart-broken woman, interrupting her answer with sobs. "He did, nigh the last, but he was an awful sufferer for more'n seven weeks—couldn't move his hands nor his legs nuther, an' he was so nervis he didn't know some of the time whether he was in bed or floatin' around the room like a pidgeon's feather."

Casting his eyes to the window, Sammy saw the Doctor alighting from his phaeton, and the boy, excusing himself to the woman, closed the office door after him as he passed out to open the outer one.

The Doctor, entering, and learning of the unexpected visitor, passed with the boy upstairs, to where Mrs. Hubbs was sitting, when the whole matter was talked over. It was thought best to let the woman take the sick monkey home with her, after which Mrs. Hubbs would be willing to make a second trial of the original Sponsie. "We will see," she remarked, "if we can possibly stand it with one monkey in the house, for, with-





out knowing it, it seems we have for months had two."

This decision did not produce the effect upon Sammy's mind that it would have done had it been uttered when the original Sponsie was brought home from Hoboken. At that time he hardly knew which monkey he loved the best. The original Sponsie was endeared to him by intimate association, beginning almost with his going to live with Dr. Hubbs, while the second one had so enlisted his sympathies for weeks, while seemingly vibrating between life and death, that this generous solicitude may have been mistaken for affection, even by himself.

The Doctor and Sammy descended to the office and as they opened the door the queer-looking widow jumped up, and, with a spasmodic courtesy sufficient, one would think, to have sent her pet-las flying across the room, ejaculated :

"How du you du? The Doctor hisself, I 'spose? I'm Mister John Tinkins' widdy."





The Doctor was compelled to turn around, as if looking for a chair, while giving way moderately to a fit of suppressed laughter, for the woman, both in person and in speech, was irresistibly droll. Taking one in his hand, and turning around with a great effort to compose himself, hemming and hawking as if suffering from a cold, he replied:

"I'm glad to see you, Mrs. Tinkins, and as the little 'critter,' as your late husband very properly called him, has made us



a great deal of trouble during the past few months,

THE DOCTOR LOOKING FOR A CHAIR.

I think you had better take him home with you."

"Take him hum with me? Why, the monkey's yourn, ain't he?" interrupted the woman, speaking rapidly. "Mr. Tinkins said as how you





would, if you was honest, hand over to me, a poor, lone, dependent widdy—”

Here the woman again gave way to her emotions, and after a pause, broken only by the woman's sighs, the Doctor went on to give a full history of the whole matter, closing with an account of the discovery of the little fellow in the hole in the floor, and his subsequent illness. While the Doctor was telling her what mischief-makers the two monkeys had been, the woman's crying turned to the most boisterous laughing, and one would have supposed from the merriment that the whole party had never experienced a moment of sorrow. The dame was perfectly hilarious over the reported pranks of the monkeys, while Sammy and the Doctor were nearly laughing their buttons off at the peculiarities of the woman, who supposed that they, like herself, were laughing at the account given of the two roguish animals. “Go down and bring up the little scapegrace, Sammy,” said the Doctor when he concluded.





During the boy's absence, for Bridget protested against her little invalid being carried away by the "ould bear's widdy," and greatly delayed Sammy as he proceeded to get Sponsie Number 2 ready to depart, the Doctor made all things satisfactory to Mrs. Tinkins by making her a donation of six dollars and fifty-four cents, with which to pay the balance of the funeral expenses incurred when her "old man," as she called him, was buried.

In a few moments more, Mister Sponsie Number 2, still poor in flesh and weak in muscle, although past all immediate danger, was borne in the arms of Mrs. Tinkins down the Doctor's steps, as she turned her face homeward with the quivering bundle of latent mischief, thinking, almost audibly, that she would rather have taken home ninety dollars than ninety monkeys, or one.





CHAPTER XI.

INJURIOUS EFFECTS OF TOBACCO—THE WAY IN WHICH THE DRUG DESTROYS LIFE—INTERESTING FACTS—THE LAUGHABLE PICTURE WHICH AROSE IN SAMMY'S MIND—EFFECTS OF IMPURE AIR—THE UNEXPECTED RETURN OF THE SICK MONKEY.



AFTER the departure of the widow, and a little joking over her peculiarities, Sammy asked: "Do you suppose that smoking killed the backwoodsman?"

The Doctor, in reply, said that he had no doubt of it. "Paralysis," he added, "is a disease of the nervous system, and tobacco has a very injurious





effect upon the nerves. Its influence is such that in time it weakens the nerve-knots or ganglia, and after a while, in many cases, tobacco-chewers and smokers lose the power to walk or raise their hands. In other words, the motor nerves lose their ability to act upon the muscles.

"Smoking," the Doctor continued, "is more hurtful than chewing, for the reason that the smoker not only injures the nervous system by bringing the fumes of the noxious weed, loaded with a poisonous oil, in contact with the absorbing membranes and delicate nerves of the mouth and nose, but he vitiates the vital properties of the air which is to be taken into his lungs, to be conveyed to the little 'corpuscular' polyps which are at work in all parts of his system.

"It is absolute cruelty to these little workers," resumed the Doctor after a momentary pause, during which he observed that Sammy appeared greatly interested, "for any one to allow himself to breathe the thick, noxious air of many of our





public places where men are permitted to smoke their pipes and cigars. And it is too bad that careful people who know these facts are oftentimes compelled to breathe such fumes, through the criminal discourtesy of those who will use the weed in spite of everything and everybody. A physiological writer has stated that if you will but hold a sheet of white paper in the smoke that curls up from burning tobacco, after a pipeful or a cigar has been devoured, and then scrape from it the smoke which has condensed upon its surface, that a very small particle of this soot, placed upon the tongue of a cat, will kill her in fifteen minutes of paralysis."

"A good substitute for boots thrown from the chamber window at midnight!" exclaimed Sammy, shaking his sides, and showing his white teeth. "Booth and Talcott should know that!"

The Doctor felt too much in earnest to join in this bit of pleasantry, and continued as if the boy





had not spoken. "Now, this is terrible stuff to breathe into the lungs, as we must all do when in close company with a smoking companion, or detained by necessity in some public room where



A PICTURE WHICH AROSE IN SAMMY'S MIND.

the air is thick with the fumes curling up from a score or more of cigars and a pipe here and there."

"Just how," inquired Sammy, again becoming serious, "do you suppose tobacco killed the backwoodsman?"





“Sensibility and the power of motion are usually first affected by the poison,” responded the Doctor; “and as these properties are most active in what are called the cerebro-spinal system, which controls our voluntary movements, some loss of muscular or sensory power usually takes place first. Then the paralysis gradually and insidiously extends, till the vegetative nervous system is reached; and when the activity of these nerves and their knots or ganglia is interrupted, there must come a struggle for existence; for, unless these nerves are active, circulation becomes defective, and the interchange between the blood and tissues is retarded. Finally, when the paralysis extends to the vital functions and organs, death must instantly ensue.”

“Then you think,” said Sammy, with his usual brightness, “that the tobacco first paralyzed those nerves in the backwoodsman that enabled him to walk and use his hands, and that this paralysis finally extended to the nerves inside of him which





kept the lungs, heart, and all the vital processes in a state of healthy activity."

"That's it exactly," rejoined the Doctor. "And when the paralysis of the vegetative system became so complete as to arrest the work of those organs and functions, the blood stopped circulating, and the little body-builders, deprived of food and building material, threw up their life-work; in other words, the backwoodsman was dead."

"Here," said Sammy going to the centre-table and picking up a morning "Tribune," "is something about tobacco in the tissues."

"Let us hear it, my boy, quickly," replied the good man, who was always on the alert for any evidences of the injurious effects of the poisonous weed. Sammy read as follows:

"That tobacco is absorbed in the tissues of the body, has long been asserted by some, though denied as positively by others. In support of the affirmative, a fact in connection with the water-cure process, known as the wet-sheet pack, is cited.





In this process the patient is enveloped in a wet sheet, and then, over this, in blankets. By this means it is claimed that, through the operation of the principles of endosmose and exosmose, the water of the sheet is made to enter the body, while at the same time impurities are withdrawn therefrom. Now, on an habitual user of tobacco being subjected for an hour to this process, it is found, on his envelopments being taken off, that the odor of tobacco coming from his body, and from the sheet in which he has lain, is perceptible to every one present.' "

"No question about it," remarked the Doctor earnestly. "How a tobacco-user can expect to saturate his meerschaum, his sleeping-room, and the clothes upon his back with the odorous weed, without saturating his tissues with it too, is a riddle for some physician to solve who makes use of the poisonous stuff himself. What's that item about Prof. Faraday and the natural duration of life?" inquired the Doctor, pointing to another





item in the same paper. Sammy reads again as follows :

“According to Prof. Faraday, the crime of suicide is very common in this age of the world, for he intimates that all who die under 100 years of age may be charged with self-murder ; that Providence, having originally intended man to live a century, would allow him to arrive at that advanced period if he did not kill himself by eating unwholesome food, allowing himself to be annoyed by trifles,



WHAT'S THAT?

giving license to passions, and exposing himself to accident. Flourens advanced the theory that the duration of life is measured by the time of growth. When once the bone and epiphysis are united the body grows no more, and it is at 20





years this union is effected in man. The natural termination of life is five removes from the several points. Man, being 20 years in growing, lives — or should — 5 times 20 years; the camel is 3 years in growing, and lives 5 times 8 years; the horse is 5 years in growing, and lives 25 years; and so on with other animals.”

“What is the meaning of epiphysis?” inquired Sammy as soon as he concluded reading.

“Epiphysis,” answered the Doctor, “is any portion of bone growing upon another, but separated from it by a cartilage. It may also mean the spongy extremity of a bone. This is the sense in which this writer uses it.”

“And I suppose that suicide is killing one’s self, from the way it is spoken of,” rejoined the boy with a look of interrogation, which was answered by an assenting nod, for before the Doctor could reply Sammy went on to say, that when people came into the world with poor health to begin with — “poor sick babies at the start,” as he expressed





it—he did not think they should be called suicides if they did die young.

“Suicide is not exactly the right word to use in this connection,” replied the Doctor, gratified to find Sammy capable of passing so just a criticism upon what he had been reading. “While many—aye millions—are guilty of self-murder in the ways spoken of, a great many die by parricide, if we may use this term as Blackstone says we may, when speaking of one who kills his child. Much of the physical suffering in this world is due to the mistakes and follies of those who have gone before us—our parents and grandparents. But,” he added, “this reflection should awaken the living creatures of to-day to a sense of greater responsibility, and cause them to guard their habits in life with respect to not only their own comforts and longevity, but with reference to the physical health and endurance of those who are to succeed them; for the people who are moving about us so actively at this moment must, in the not far-off future, in turn





become the ancestry of those who will justly bless or blame them in ages to come."

The Doctor went on to say that there was another criticism that he would pass upon the same article, which was that so common a cause of physical suffering and short life as impure air should not have been included, for he believed that as many people died from breathing noxious air as from what could be grouped in the catalogue of unwholesome food, this expression being doubtless intended by the writer to cover all injurious things, whether solid or fluid, which are allowed to enter the human body through the lips. The parlor, the counting-room, the church, the school-room, the theatre, the steam and horse-car, and all places where people meet for social, business, religious, educational, or convivial purposes, especially in winter, gather gases from human exhalations, imperfect heating apparatuses, etc., which cause untold suffering and premature death to all who knowingly or through ignorance inhale them. At this moment the conversation was





interrupted by the window being jarred and darkened by an animal alighting upon the window-sill.

"There's Sponsie!" exclaimed the Doctor. "No, it is the sick monkey," said Sammy, approaching the window. "I'll bet he got away from the back-woodsman's widow."

On raising the window, in which effort the Doctor assisted, in sprang the monkey, and sure enough it was the sick one, just as Sammy thought. He seemed delighted to get back, and the little fellow



jumped from the floor to **AN UNEXPECTED VISITOR.** Sammy's shoulders, and then to the Doctor's lap, and back to the floor again, as if he hardly knew how to show his joy. This agility was the more remarkable in view of his late sickness and weak condition.





After many expressions of surprise and guesses as to how he could have got back, Sammy took him to the kitchen, greatly to the delight of Bridget, who, notwithstanding her trouble with the monkey family, could not bear the idea of having the little pest taken to the home of the late backwoodsman. The grave did not bury his faults from the girl's eyes. She took the monkey up in her great bare arms, and gave him a true Irish welcome. Then she put him on the table, and set before him some nuts and apples, all of which he proceeded to devour as rapidly as if he had not so recently been Bridget's gasping patient.

Sammy left him in the cook's charge, and upon going up to the office again, he found Mrs. Hubbs there, wondering, as all the rest had done, at the cause of the sick monkey's return.

"Well," said Mrs. Hubbs, addressing both the Doctor and Sammy, "we shall have to let Sponsie remain at his 27th Street home, for we cannot have two monkeys in this house at the same time. We





will try and see if we can get along with one ; and that one had better be the little invalid, for he is not quite so mischievous as Sponsie." This was not quite as Sammy would have liked, for he had hoped to have Sponsie Number 1 back again in his old quarters. But this arrangement, he consoled himself, would greatly please his folks at home, for they had already become greatly attached to the original Sponsie ; besides, they had some prejudices to a sick monkey, for at the time that Sponsie was brought over from Hoboken there was some talk about having the little invalid carried over to the home of the Tubbs, when old Mrs. Burtell told the family that to harbor a sick monkey in one's house would fill it with bob-tailed rats, spiders with monstrous legs, toads with enormous eyes, and with cockroaches and blind mice ! This was one of the old lady's baseless superstitions, and the Tubbs family had become sufficiently intelligent to regard it as such ; but still they would have felt better if she had never said it, for if the sick monkey should





ever become an inmate of the house, and a strange thing did happen within it, old Mrs. Burtell would have the satisfaction of saying, "I told you so!" Now, nobody likes to hear "I told you so," not even a boy who goes skating when the ice is so thin that he breaks through; or a girl when she wears shoes that are so thin that she gets cold, and goes about the house sneezing, if not coughing; nor yet the man or woman who ventures out against the remonstrances of friends on a sleety day with an outspread umbrella, and takes an unwilling seat in a snow-puddle before returning.





CHAPTER XII.

SPONSIE TAUGHT TO DANCE AND PLAY THE BASS-VIOL—CHRISTMAS NIGHT AT SAMMY'S HOUSE—THE EXCHANGE GOING ON BETWEEN ANIMAL AND VEGETABLE LIFE—CURIOUS FACTS—SPONSIE DOG-BACK, AND HIS ILL LUCK AS A DRIVER—SPONSIE NUMBER 2—THE CLOSE OF THIS VOLUME.



YOU will feel regret, as I certainly do, when I remind you that our volume is getting so full that it will be necessary to bring it to a close with this chapter. I have not told you half that I intended, to about either the pranks of the monkeys, or the conversations between the Doctor and the little practitioner. Sponsie, unlike





his master, Sammy, has ignored books altogether, and has been up to many of his old tricks, besides learning several new ones in the home of the Tubbs.

For instance, the colored people attending Sammy's evening class have, after the school exercises were over, turned the room into a sort of a variety show, and have made Sponsie their star actor. Among other things, they have taught the little chap how to dance the Highland Fling and Sailor's Hornpipe. If you could have looked into Sammy's house Christmas night, you would have laughed yourselves hoarse to have seen Sponsie, with old Mr. Johnson's spectacles on, playing the bass-viol, accompanied with others playing "fiddles" and banjos, while old Mrs. Burtell danced a plantation jig.

Then, again, I failed to report a very interesting conversation between the Doctor and the little practitioner, about the part which vegetation takes to keep mankind supplied with healthful air and food.



CHRISTMAS NIGHT AT THE TURKS.





Oxygen, you know, is the life-sustaining element of the air for animals. This you all learned from a previous interview between the Doctor and Sammy, which I did not fail to tell you about. In a subsequent conversation, Sammy's preceptor also informed him that carbonic acid gas was the element of the air which best suited the purposes of plants. For us to breathe very much more of this element than the exceedingly small proportion which pure air contains, would quickly destroy us. But the flowers and trees inhale this, to us, deadly gas, and thrive upon it. The leaves of plants are called their lungs, and very properly, for through them vegetation takes up from the atmosphere properties suited to assist in its growth. How much it takes up from the atmosphere to aid in its development, is shown by the luxurious growth of many house-plants, which are rooted in but small pots of earth. An experiment was once made by planting a willow in two hundred pounds of soil, and in five years the tree gained one hundred and sixty-five pounds





in weight, while the earth in which it was planted only lost two ounces. This tree must consequently have gained most of its nutritive material from water and air.



THE LUNGS OF A TREE.

The vapors we exhale when breathing are loaded with carbonic acid, and this the plants take up eagerly with their outspread foliage, and by a curious chemical trick they change it to solid carbon, and add it to their structure, just as the stomach and its helpers add bread and butter to your physical body. During the day, too, the plants exhale the pure oxygen which we so much need, so that we exchange our superfluous carbonic acid gas for their superfluous oxygen. A grand dicker! you will all say, and I must say so too, for this





nice little arrangement enables the animals and vegetables to help each other.

Appletons' Journal tells us "that in addition to the pleasure that may be derived from the culture of vegetation, that the value to health of flowers and plants deserves especial attention. It was known, many years ago, that ozone is one of the forms in which oxygen exists in the air, and that it possesses extraordinary powers in overcoming unwholesome and bad-smelling properties, which are so apt to get into it in densely populated places. Now, one of the most important discoveries in chemistry is that made by a celebrated professor, by the name of Mantegazza, that ozone is produced in immense quantities by all plants and flowers possessing green leaves and aromatic odors. Hyacinths, mignonette, heliotrope, lemon, mint, lavender, narcissus, cherry, laurel, and the like all throw off ozone largely on exposure to the sun's rays; and so powerful is this great atmospheric purifier, that it is the belief of chemists that whole





districts can be redeemed from the deadly malaria which now infests them by simply covering them with aromatic vegetation. The bearing of this upon flower culture in our large cities is also very important. Experiments have proved that the air of cities contains less ozone than that of the surrounding country, and the thickly inhabited parts of cities less than the more sparsely built, or than the parks and open squares. Plants and flowers and green trees can alone restore the balance; so that every little flower-pot is not merely a thing of beauty, while it lasts, but has a direct and beneficial influence upon the health of the neighborhood in which it is found. Surely it is a beautiful provision of Nature that something which is at once the most dainty of occupations and most delightful of amusements should be intimately bound up with the solution of problems so important as the health of our cities and the redemption of fever-infected districts in the country."

At night-time, however, the plants change char





acter a little, just as some human beings do. In other words they do not behave quite the same, for they throw off some carbonic acid in the dark, for which reason house-plants may better be placed in a room by themselves to frolic as they please, while we sleep. The fact is, our sleeping rooms are not the proper places for pet cats, lapdogs, or monthly roses.

Now, although I am throwing all this together in my own way to save space, the foregoing is about what passed between the Doctor and Sammy in regard to the manner in which vegetation helps us to pure air, and you will be able, with what you know about the little practitioner, to guess that he was the one to read what *Appletons' Journal* said about it, and to group in one sentence pet cats, lapdogs, and monthly roses. Your guess is a good one.

The Doctor also told Sammy how the vegetable world supplied the animal world with food. We could not live upon sand, gravel, and rocks,





nor yet on rich soil. But the plants send out their numerous roots through all these substances, and gather up the material which can be used as food by animals, and we derive our food from both the



plants and the lower orders of animal life. But the vegetables have to do the first work, whether we take our food directly from them, or from animals which originally derive their sustenance from the store-houses of the vegetable world, for which we in return repay the plants

"THE ROOT OF THE MATTER." by giving to them all our waste and useless materials—even our bodies after we get through with them. It is said that the reason that the shrubs and trees of our beautiful cemeteries grow so rank, and throw out such rich foliage, is because they take back to them-





selves that which they have only loaned to the human body during the brief period that it is animated with life.

There is, indeed, more or less of this very exchange going on between the higher and lower orders of animal life. Huxley reminds those of us who may be feasting on oysters, clams, and lobsters, that if we should happen to be lost at sea, these animals would doubtless return the compliment by making food of our bodies.

Nevertheless, the greatest exchange is being made directly between animal and vegetable life; for while in the sea the aquatic cannibals, as some of the fishes might, by a stretch of the man-eating term, be called, live on each other, and upon such animals as make their graves in the sea, there would in time be an end to this exchange, were there not living forms in the sea extracting substances for animal life from aquatic plants.

Hence, in respect to food, the plants are our indispensable agents in extracting from Earth and Air





the nutritive material which supports the animal kingdom, and at the same time they are kindly interposing to disinfect the atmosphere of the noxious gases and effete matters which animal bodies are constantly throwing off in various ways.



THIS IS NOT PLEASANT.

But you are wearying of this, I imagine, and want to know more about the pet monkeys. Well, Sponsie, I may say, really enjoys himself better at the home of the Tubbs, than he did when he was a companion of Bridget's in Mrs. Hubbs' kitchen

After Sammy took so closely to study, and nearly lost his head in talking about endosmosis and ex-osmosis, and the corpuscular moners and polyps (or as the girl expressed it, the mosses and mourners), the little practitioner could spare only a few





nements each day to his monkey pet. Sponsie was herefore compelled to find diversion in the kitchen, where Bridget's temper sometimes nearly cost him his innocent young life, for when the girl was cross about anything, the chances were at least even that a dozen potatoes would go flying against Sponsie's head, instead of being dropped amiably into the pot to boil. When the little fellow had composed himself for a nap, this kind of target-practice was not only not amusing to him, but, as



THIS WILL DO BETTER.

You may well imagine, painful, when they brought up abruptly upon his already flat nose, or, breaking to pieces against the window-sill, spattered their juices into his suddenly awakened eyes.

At the Tubbs' mansion there was everything to





divert Sponsie. Sammy's father had a big Newfoundland dog, which the monkey would ride by the hour, greatly to the delight of the girls and boys who would gather around. Sammy bought him a saddle and bridle for the purpose, and old Blücher (for that was the dog's name) became so fond of Sponsie, that he would put up with almost anything from him. There was one species of trifling, however, that his canine highness would not tolerate, and that was being hitched before a dog-cart. Some of the colored children, bent upon having him broken to this work, supplied Sponsie with a rope harness and cart, to train old Blücher. There was no trouble in the harnessing, but when Sponsie would get into the wagon, and lay on the lash, the dog would look around and laugh as well as any animal below man could perform an act said to be peculiar only to human beings, and put on an expression which looked like saying—

“Go it, Sponsie; my hair is long, your whip is nothing but a tow-string, and I can stand here just





as long as it pleases you to sit there. So larrup away until your hand gets tired, then you can rest and go at it again."

The last attempt cured Sponsie. Old Blücher's tail was up, his mouth was wide open, displaying a hospitable tongue, too hospitable indeed for his mouth to hold it all, and his eyes looked as if full of good-humor. Sponsie took his seat, and commenced the lashing as usual. The children in high glee gathered around to see the fun. By and by, old Blücher suddenly dashed off as if chasing a deer. As he broke through the crowd, some of the children were knocked into the gutter, and others frantically ran up the steps of the houses along the street. Sponsie shrunk up like a small fur ball in his seat, and his head was as invisible as that of a turtle when scared. The wagon went bobbing up and down, first on the sidewalk, and then on the cobblestone pavement. The cart would at times bound up a foot or more, nearly throwing Sponsie out, and after dashing around





SPONSIE'S (NOT SHERIDAN'S)

RIDE.

two blocks, old Blücher appeared at the end of the street opposite to the one from which he started, the wagon dragged along upon its overturned box, instead of upon its wheels. Of course Spönsie had been tipped out somewhere. The children ran in all directions to find the missing monkey; and some of them were 'cute enough to look into a drug-store on Seventh Avenue, where their astonished eyes beheld the unfortunate driver of old Blücher sprawled out upon the counter, receiving an application of arnica to





sundry bruises upon his head and limbs. When the humane druggist finished bathing Sponsie's bruises, the little disabled fellow was carried home a "sadder and wiser" mon-(key). He never attempted to drive old Bülcher again. But he soon recovered from his contusions, and although for a time he avoided the company of his Newfoundland pony, a complete reconciliation finally took place between the two, and Sponsie again indulged in the pastime of riding dog-back. He has not, however, indulged in strong drink since the terrible spree which nearly cost him his life. His example in this particular is worthy of our imitation.

As for Sponsie Number 2, he has not felt well enough since his imprisonment under the floor to do anything very amusing. The exhibition of joy which he displayed on his return to the Doctor and Sammy, after he had been taken away by the backwoodsman's widow, was quite too much for him. And he had soon after another of those gasping spells which so alarmed Bridget on a former occa-

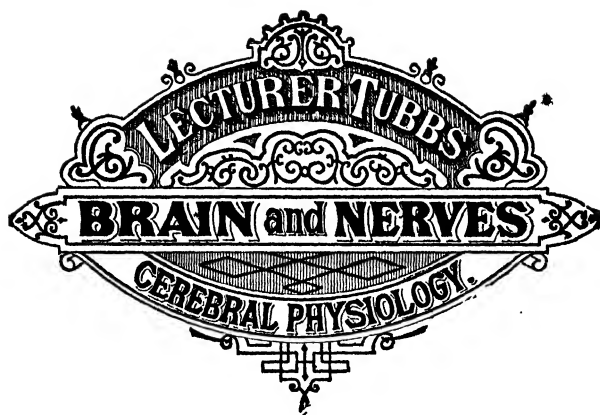




sion. The Doctor gave it as his opinion, that it was a kind of hysteria.

As soon as he fully recovers, he will be mischievous enough without doubt ; and with one monkey at his Twenty-seventh Street office, and another at the home of his employer, Sammy will have his hands and eyes full, when not engaged in more important matters. It is quite to the credit of our little practitioner, that the pranks of his pets cannot divert his attention from a reasonable amount of study. He has followed up his investigations of the digestive, nutritive, respiratory, and vegetative nervous systems with commendable patience and perseverance ; and in studying these, he has learned a great deal besides that will prove useful to him. If any of you have failed to remember all that has been talked over of those organs which maintain life in your bodies, it will repay you to peruse this volume for a second or third time. For the present, my young readers, adieu ! Like Jack in the box, I may return again at any moment, if you but touch the secret spring.





PART FOURTH.



THE MASKED PARTY AT THE BIDDLEWICKER'S.
[See Chapter VIII.]



CHAPTER I.

THE LECTURER TUBBS.



F no one of my impatient or mischievous readers has touched the secret spring to which reference was made in closing the last volume, then circumstances must have done so, for here I am again, and loaded down, too, with news, like the small boy under your window, crying, "'Ere's the 'Erald,

Tribune, Times, and World!" First let me tell you that there is a large handbill posted about the streets which announces that Doctor Samuel Tubbs will deliver a lecture at the Johnson Dispensary on Twenty-seventh Street, on the evening



of the 7th of January, at eight o'clock. Subject, THE BRAIN.



SAMMY'S HANDBILL.

Sammy himself knows nothing of this poster yet, but I can tell you who does—Doctor Winkles. He is closeted at this moment with his particular





friend, Doctor Hubbs, talking the matter over. The boy knows that he is engaged to lecture, for he promised his old friend Mr. Johnson that he would do so on the subject and night already named, but he has not the slightest knowledge of the fact that the lecture is advertised in all that portion of the city bounded by Twenty-third and Forty-second Streets, Broadway and Ninth Avenue, excepting, mind you, the route which Sammy always takes in going back and forth between the Doctor's and his Twenty-seventh Street home. Old Mr. Johnson, fearing that the hand-bill might make the young lecturer feel that he had undertaken too much, directed the little colored boys who gratuitously posted the announcements, to avoid the blocks which Sammy frequented.

The little practitioner is at this very moment at the Dispensary attending as usual, during the morning hours, to his patients, while Doctor Winkles has taken advantage of his absence at this time in the day from the office of his employer, to see Doctor Hubbs about the announcement of the lecture.





Doctor Winkles is again astonished that Doctor Hubbs should allow the "old fool to make a young fool of Sammy."

Doctor Hubbs protests his innocence and even ignorance of the whole matter. He is very much surprised that Sammy should have undertaken such a thing without consulting him, but he is inclined to believe that the boy will prove equal to the emergency.

Both gentlemen conclude that it is too late to interfere either to prevent the lecture, or to give the young lecturer any assistance, for, according to the date announced, it is to come off this very evening.

"I want to attend," said Doctor Winkles, "and see what the presumptuous young fellow will do. I'll bet you anything he will utterly break down if there should be many people present, white as well as black, for there is nothing in the poster that says that the lecture is intended for colored people only."

"Don't you go!" exclaimed Doctor Hubbs, with decided emphasis. "Your presence alone would have a worse effect upon Sammy than a





room full of people. He certainly would break down if he should see your critical eyes behind those well-known glasses. Surprised as I am that the boy should go headlong into anything like this without advising with those whom he has reason to regard as his best friends, I know of no punishment that would be more cruel than for you to intrude your presence there. Now, Winkles, do you stay at home, unless professional business calls you out; and if called, see to it that your unconquerable curiosity does not take possession of you before you get back, and, when back, turn the key in your door, with yourself on the right side of it."

"But everybody is invited to attend," insisted the persistent Doctor Winkles. "He must have known that we should probably see the posters, and that if we did we should likely be among his listeners."

"Well, well!" rejoined Doctor Hubbs, entirely out of patience with his old friend, who seemed ever ready to put Sammy under some new torture; "if the boy wanted either of us there, we should have received ere this a direct invitation. Perhaps the very reason he has kept so still about



it is because of the fear that you might attend, Winkles. I did not think of it before, but I am inclined to believe that this is the real cause of Sammy's silence. He remembers how mercilessly you pursued him when old Mr. Johnson put up a sign



bearing his name. Very likely he, too, has been pressed against his own modest convictions into this new enterprise, and has decided to try it once before speaking of it to either of us, trusting that we will be too much taken up with our own professional labors to stop still on the sidewalk and read handbills on the

THERE ARE MR. GRUNDYS. fences. And I must say now," continued the visibly excited man, "that I do not believe I should have seen those posters if you had not called my attention to them. Let us not talk any more in derision of meddlesome old maids and gossiping Mrs. Grundys, for there are





no more such characters among women than there are among men."

Doctor Winkles felt not a little cut by this remark, and a forced laugh broke from his lips as Doctor Hubbs concluded. "Then you think,"

said the former, taking up his hat to leave, "that it is not the fair thing for us to go around there to-night? I frankly confess that I cannot view the question in the same light that you do. When a person is going to lecture, and announces it with flaming handbills, I am stupid enough to take it for granted that he wants every one who



can to attend." Saying this, the visitor walked towards the door, while Sammy's true friend and apologist, returning to a persuasive tone, made a last appeal to Doctor Winkles to stay away from the Johnson Dispensary on the occasion of the

AS WELL AS MRS. GRUNDYS.





boy's first appearance as a lecturer. "Give the rash lad a reasonable chance," he added.

Although his professional friend stood out to the last in not committing himself, Doctor Hubbs returned to his office-room, at the conclusion of the interview, feeling quite confident that his appeal would be heeded. While he sat there alone, thinking the matter over, in walked Sammy looking as unconcerned as if he had nothing but his usual duties on hand for the coming evening.

"Remarkable youth!" exclaimed the Doctor to himself in an undertone, not intending to be heard, after watching the boy's movements for a few moments.

"Did you speak to me?" inquired Sammy, turning suddenly from the bookcase, in which he was replacing Scudder's "Theory and Practice," which he had brought home with him from the Dispensary.

"No, I did not, but I want to," replied the Doctor. "Are you going to deliver a lecture to-night on the subject of the Brain?"

It was well that Sammy had put the book away before this inquiry reached his ears, or he would cer-





tainly have dropped it, so greatly was he overcome with both surprise and embarrassment. Finally rallying a little, he said, in a hesitating manner, "I am, to please Mr. Johnson, going to give a kind of conversational lecture. I don't know how I shall make out, but to gratify him I thought I would just try." The boy at once took it for granted that the Doctor had seen Mr. Johnson.

"Then why announce it in posters, if it is only an experiment?" asked the considerate man.

"Posters!" gasped the terrified Sammy; "why, what do you mean, Doctor Hubbs?"



THE SURPRISED SAMMY.

inquired the still further surprised boy, who was instantly seized with the suspicion that perhaps old Mr. Johnson had caused the lecture to be advertised. "I know nothing of any posters."

"Is it possible, Sammy, that you do not know





that you are advertised on the fences, empty barrels, and all the old buildings, to lecture to-night?"

"I am sure I did not," replied Sammy, for the moment more fearful of having offended his kind preceptor than of making a failure of his promised effort. Almost too frightened to articulate, he then proceeded in broken sentences to explain just what had passed between himself and old Mr. Johnson in regard to this matter, remarking that his instructions to his evening class had recently taken so much the character of informal lectures, that he had reluctantly consented to have it circulated, a little more publicly than it had been done before, that he would deliver a lecture on the evening appointed. "But," he stated, "I have not been consulted about the issuing of handbills, nor did I know of their existence. I only expected that the occasion would be advertised by word of mouth among my colored friends."

"I suppose then you have written out what you propose to say about the brain," remarked the Doctor in an inquiring tone, after expressing his dissatisfaction with the strange course pursued by old Mr. Johnson.





"I have not," frankly answered the boy.

"Why, Sammy! Sammy!" exclaimed the Doctor with astonishment, "you and your old colored friend must both of you be confirmed lunatics! Then you propose to stand up there after you have been announced in a most public manner, and speak without notes or preparation, do you?"

A smile lit up the blanched lips of the boy in view of his preceptor's solicitude, as he replied: "The rooms with sliding-doors thrown open can hold not more than fifty people, if they can as many. I have," he said, "already talked to over thirty persons at a time on some evenings." Sammy also expressed it as his opinion that there would not be many white folks there, as hardly anybody knew about Doctor Samuel Tubbs excepting the colored people of his immediate neighborhood.

"What if Doctor Winkles should attend?" interrogated the Doctor in a way to awaken Sammy to a sense of the position he would occupy before his class if questioned by this unsparing critic.

"Goodness gracious! I didn't think of that!" exclaimed the lad, dropping into the first chair as if his muscles had given out. "Do you suppose,



Doctor, that he has seen the posters?" asked the boy with an expression of painful anxiety.

"Indeed, he has, and he has been here this very morning to see me about them," answered the still anxious preceptor, who took so much pride in his pupil that any misstep on the part of the latter was felt as keenly by the one as by the other.

The Doctor then told Sammy all about the interview, and it was decided that all leisure moments from that hour till eight o'clock should be spent in studying the brain, so as to be prepared for the "everlasting questioner," should he be present.





CHAPTER II.

NEARLY EIGHT O'CLOCK—CROWDS IN FRONT OF SAMMY'S HOUSE—THE DOCTOR AND SAMMY ENTER BY A BACK DOOR—DR. WINKLES THERE IN DISGUISE—DR. HUBBS INTRODUCES HIS PUPIL—THE YOUNG LECTURER EXHIBITS GREAT SELF-POSSESSION—SPONSIE OCCASIONS THE SENSATION OF THE EVENING—THREATENED RIOT!



DENSE crowd of boys, girls, and grown folks of all complexions, from the purest white of the Caucasian to the darkest skin of the Ethiopian, met the gaze of the Doctor and Sammy as they turned the corner of the block wherein was located what had come to be known among the colored people as the "Johnson Dispensary."





Sammy's true friend and adviser had determined to accompany the boy and see him through what seemed like a most foolhardy adventure.

"See there? See there?" nervously repeated the Doctor in a tone partaking both of exclamation and interrogation. "Do you see how they are crowding up the steps?"

Sammy felt not a little trepidation himself, but made up his mind to conceal it, if possible. Waiting for a moment to be sure that his throat would not prove nervously treacherous and interrupt his utterance, he said calmly:

"Well, Doctor, let them crowd. You can put but a pint of pea-nuts into a pint cup, and those rooms will only hold two rooms full of people."

This affected self-possession on the part of the youth greatly surprised the good man as both himself and pupil now began to elbow their way through the outer circle of the throng. Finding it impossible to reach the steps in that direction, Sammy conducted his preceptor through a narrow alley to the rear of the building, where they were enabled to enter the house by a back door.

Sammy was instantly met in the hall-way by old





Mrs. Tubbs, nearly scared out of her wits. "De rooms is chuck full," she said. "All de chars from de kitchen an' de bedrooms an' all de white-wash pails is full ov young uns an' old ones. Yur foder hab gone to fotch up de wash-benches."

"You had better close the doors at once, Mrs. Tubbs," replied the Doctor, showing quite as much agitation as did the old lady. "Tell the people outside that the house is full. Wait a minute," added the Doctor, hesitating a little—"perhaps I may better do it." He then elbowed his way through the crowd that packed the front hall-way, and, reaching the steps, he said :

"On behalf of the young man, Master Samuel Tubbs, I heartily thank you for the kind interest you have manifested in him and in the subject upon which he proposes to lecture. But I am compelled to express both his and my regrets that the house will not accommodate you all. There are already as many inside as can possibly gain admission. Perhaps you may have an opportunity to hear him at some future time, if your friends who are present to-night shall be sufficiently entertained to speak well of the performance." Saying



this, the Doctor gracefully waved his hat, and, stepping inside, closed the outer door and turned the bolts.

A murmur of dissatisfaction was heard from



DOCTOR HUBBS SPEAKS TO THE CROWD OUTSIDE.

without, and some rather rough language from those who were doubtless attracted to the spot simply through curiosity. . But gradually the people outside one by one reluctantly withdrew, until, within the course of fifteen minutes, all was





quiet except the rustling of dresses, occasional moving of the feet, or a half-suppressed cough from those having defective breathing-organs. To both the Doctor and his pupil the silence and the apparent gravity of the occasion were painful.

"Who are present?" Well, on a platform a little raised at the end of the back room are seated the young lecturer and his preceptor—the former looking a little less composed than usual, and the latter as pale as if he had but just recovered from a severe fit of illness. In chairs near the sliding-doors are Mrs. Millstone and her friend Mrs. Biddlewicker. The Doctor and Sammy make a nod of recognition to them, and look nervously about to see if Doctor Winkles is present. "He is not here," whispers Sammy to his anxious friend. "I am very thankful," responded the latter in an undertone.

Now, don't one of you say anything about it. Let "mum" be the watchword now as on a former occasion which my young readers all remember.

The man of "unconquerable curiosity," Doctor Winkles, is present, and he has been mean enough





to blacken and mask his face, and put on a curly black wig, so as not to be recognized. He sits in the front room, and is partially hidden from those on the stage by the projection which forms a part of the sliding-door on that side. But if he were directly before them they could not possibly detect the trick, so perfect is the disguise.

Old Mr. Johnson has just entered by the back way, and is invited to take a seat on the young lecturer's left, the Doctor being seated on the right. A few pleasant words pass between Doctor Hubbs and the old man, the former having decided to make the best of what looks like a wild procedure.

Of course old Mrs. Burtell, Young Diggles, and others of Sammy's evening class, came early enough to secure seats, and all of them appear as if greatly elated to find themselves in such distinguished company.

Standing in the hall and door-ways of each room are Sammy's father and mother, brothers and sisters, all perceptibly affected with mingled emotions of pride and anxiety. They fear, like the Doctor, that Sammy has undertaken more than he can carry through. None of the boy's





intimate friends and relatives, indeed, feel confident excepting old Mr. Johnson, who sits erect in his chair with his hands resting carelessly upon the gold knob of his cane and his head somewhat thrown back, viewing with great satisfaction the results of his handbill advertising.

Presently Doctor Hubbs rises and calls the meeting to order. In tremulous tones he briefly traces the interesting career of Master Sammy thus far, and prophesies for him, if his life is spared, an honorable and useful future. As he proceeds, the audience is so greatly affected that there is not a dry eye in the room. Even the complacent old Mr. Johnson is seen to press back with his handsomely embroidered handkerchief the tears which force their way to his large, generous eyes. In conclusion Doctor Hubbs begs the kind indulgence of those present while listening to Sammy's first attempt as a lecturer, and expresses the hope that if the young man fails to interest them on this occasion he may meet with better success at some future time, when, with more careful preparation, he will be able to stand with greater confidence before them in the capacity of a speaker upon sub





jects which have more or less baffled the wisdom of our most distinguished scientists. "I have the pleasure," he adds, "of introducing to you one who is familiarly called by my venerable friend upon my left by the name of—Doctor Samuel Tubbs."

As Sammy arose there was the wildest clapping of hands by all present, including the disguised Doctor Winkles, who already began to feel mortally ashamed that he had imposed himself upon so respectable a company under cover of burnt cork, a mask, and a wig of artificially crisped hair.

When the applause subsided, Sammy advanced, bowing, to the front of the rude platform, and, in a tone of wonderful self-possession, said :

"MY FRIENDS:—I have no apologies to offer for appearing before you to-night. All that are necessary have been feelingly given by one to whom I am wholly indebted for all the knowledge I have obtained of anatomy and physiology. To my humble parents over there I owe my feeble beginning—to my preceptor belongs the credit of awakening within me a love of study—to my venerable friend on my left I am indebted for the





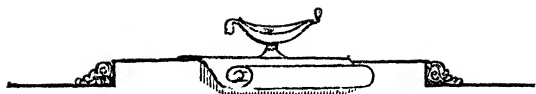
material comforts that surround my father's family, and to him you are indebted for whatever pleasure



SAMMY'S FIRST EXPERIENCE AS A LECTURER.

or profit you derive from my evening school at this place—while to an All-wise Providence we are all indebted for those unseen tides and currents





which silently bear us along on the unknown stream of life to whatever success we may by generous accident or honest endeavor attain.

[Applause, in which both Doctor Hubbs and his friend Doctor Winkles join.]

"Life itself is a wonderful mystery. Yet all of life is not a greater phenomenon than is this one organ which I am using here to-night," placing his hand gracefully upon his forehead, as all again clapped their hands.

"The Brain—what is the brain? Our greatest students do not know yet! Then why propose to lecture upon the Brain?—I'll tell you," said the speaker with a roguish twinkle in the eye and a humorous parting of the lips which revealed a still deeper twinkle, for his teeth glistened like living pearls. "I once heard Prof. Alexander Wilder say that when you want to write an essay or deliver a lecture, choose for your subject something you know nothing-about!"

[Great laughter and applause. Doctor Hubbs' countenance by this time showed that much of his anxiety had departed. The Tubbs' family looked proud and delighted. Old Mr. Johnson cast his





eyes triumphantly over the audience and shook his fat sides. And Doctor Winkles joined in the applause and merriment, but would gladly have given his check at that moment for fifty dollars if he had only left his wig, mask, and burnt cork at home.]

"Scientists find," resumed the young speaker, uttering his words with great distinctness, and throwing in a graceful movement of the hand when the subject invited it, "that the brain is made up of Albumen, seven parts; Cerebral fats, a little over five parts; Phosphorus, one and one-half parts; Ozmazome, one part; Acids, salts, and sulphur, a trifle more than five parts, and a substance so common as the water you draw from the Croton reservoir in the city or from your wells in the country, eighty parts.

"What does all of this signify? It is well to know it, and it is a credit to chemistry to have found it out; but who among you can put these things together and in their true proportions, and make a human brain? If any of you can, there is water enough in the park reservoir, if you will but collect together the small percentage of the other



materials, to make several millions of brains as large as Daniel Webster's and as wise and generous as that of our lamented Lincoln; for bear in mind the brain is mostly composed of water, as indicated by so large a percentage as eighty parts in a hundred.



SAMMY AS HE LOOKED WHILE
SPEAKING.

[Rapturous applause before the conclusion of the sentence; shaking of hats, and handkerchiefs, and stamping of feet on the mention of the last name, so dear to the colored people.]

"But our scientists have, nevertheless, progressed a little further than merely to find out what the brain is made of," said the young lecturer in a conversational tone after the applause ended. "We are mainly indebted to Gall and his pupil, Spurzheim, for first questioning the brain as to its peculiar organs and functions. Sufficient credit has never





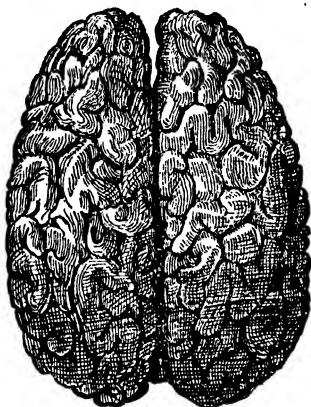
been awarded by those who have profited by his discoveries to Gall, the distinguished phrenologist, who first discovered the true structure of the brain ; or yet to other writers and investigators in the same field who have been frank enough to avow themselves believers in phrenology, such as the late George Combe and William Byrd Powell, and Professor J. R. Buchanan, and the physiognomist Redfield ;—all of whom have contributed valuable truths to the current literature of the day, thereby laying stepping-stones for the feet of other scientists who have been more fortunate in extending their reputation.

[Doctor Hubbs, who was a great admirer of Byrd Powell and Professor Buchanan, clapped his hands at this point, and the applause soon spread throughout the audience.]

“Lately,” resumed the young lecturer, “much has been said about two brains. What is called the cerebrum, that is, the front and upper brain, has two hemispheres, or, in other words, two parts, one on the right, and the other on the left side, resembling each other in structure. Some thirty or more years ago a doctor by the name of Wigan sug-



gested that either of these parts might do all the thinking for any one person. More recently Doctors Brown-Séquard, T. S. Lambert, and others have called the people's attention in popular lectures to the same subject. Anatomy sustains the views of



THE TWO BRAINS WHICH DO OUR THINKING.

these gentlemen, as I will presently show." Here the young lecturer hung upon the wall a picture showing the brain as it would appear if you should remove the skull, and from a place above look down upon it.





“The division which is seen at the top of the brain extends down to what is called the corpus callosum, a flat band composed of a wonderful network of nerve-fibres, like so many fine telegraph-wires, which doubtless serve to communicate intelligence between the two sides, or the two brains.

[“Wonderful! sir; perfectly wonderful! sir,” exclaimed old Mr. Johnson, rising from his seat and viewing the plate, which Doctor Hubbs had loaned to Sammy for the occasion. At this juncture all in the two rooms arose, and, with eyes straining over each other’s shoulders, tried to get a good view of the plate. Doctor Winkles, to avoid suspicion, appeared even more anxious than the rest to see the picture, with which he was as familiar as he was with the glasses upon his nose. Finally those who arose from their seats one after another settled down again, and Sammy resumed:]

“Doctor Brown-Séquard says that the reason some people have so much trouble in making up their minds, is because these two brains in one person sometimes think differently upon the same subject. We all know that there is not as much





difficulty in getting two people of equal intelligence to agree upon some point in dispute, as when one is intelligent and the other is ignorant. Well, Doctor Brown-Séquard says that we do not educate these two brains alike; that to do so we should use our left hand as well as our right. When we use our right hand we are mainly using the left hemisphere of the brain, and when we use the left hand we are mainly using the right side of the brain. The reason of this is that many of the nerves entering the body from the brain cross each other at a point where the spinal column swells into the medulla oblongata, in the under part of the brain, so that the right side of the brain has telegraphic communication with the muscles of the left side of the body, and the left side of the brain with the muscles of the right side of the body."

["This, sir, is very interesting—very interesting, sir!" exclaimed the enthusiastic Mr. Johnson so loudly that he could be heard in every part of the two rooms.]

Sammy here took advantage of the interruption to refresh himself with a glass of water, which one





of his proud little sisters brought to the table only a few moments before.

“At a recent lecture by Stephen Pearl Andrews,” resumed the encouraged boy-orator, “the speaker alluded to the right hemisphere of the brain as being the feminine side, and remarked that we should never reach true mental development so long as we failed to recognize and call into full play the right hemisphere of the brain, any more than we can have a well-organized society so long as the feminine half of the people constituting it is limited in its development and sphere of action.

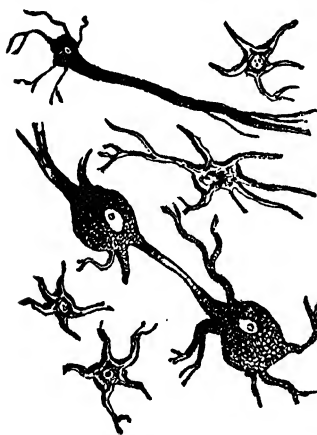
[This occasioned great clapping of hands by the women present, led off by Mrs. Millstone and Mrs. Biddlewicker, which applause was soon caught up by the masculine portion of the audience as well, sounding like a loud echo to the first.]

“The brain is composed of cellular matter (that is, matter with little cells in it) of a gray color, and of little white fibres or strings something like what is presented in the two plates I hold up before you, and the surface of each hemisphere presents numerous convolutions, or, in other words, waving rolls of substance. Now, Dr. Broadbent informs us that





the left half of the brain, which is the most used, contains a greater amount of gray matter and more convolutions than the right half. Inasmuch, then, as the gray matter is the reservoir if not the producer of nerve-force, and the convolutions are for



the purpose of giving greater surface for the gray matter, we certainly see that for some reason our left brain is a smarter fellow, so to speak, than our right brain. And it is not strange that two such unequally developed chums do not always get along harmoniously together, as illustrated

CELLULAR MATTER OF THE BRAIN. when people are said to have two minds—not to know what they want themselves, to be vacillating, etc.

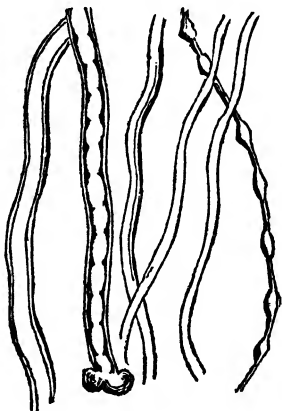
[At this good point the old gentleman on the platform brings down his cane in a succession of hard raps on the table; and all join in the applause.





Old Mr. Johnson never looked so happy in his life before.]

“ Doctor Lambert,” said the young lecturer, “ thinks we ought to be able to use the two brains at the same time and for different purposes, and that most of us do whether we know it or not. He even claims that we should be able to give rest to one hemisphere by putting it to sleep while the other is acting the part of sentinel and worker, and then change off, and so, with two hands alternating at the double-thought machine, do two men’s work in a given space of time without seemingly taking rest. He says he can and often does. [Applause and laughter.]



THE NERVE FIBRES OF THE
BRAIN.

“ Doctor Lambert further tells us that our first impressions upon any given question are generally the most correct because they proceed from the





most active and best brain of the two hemispheres. That if a controversy has been conducted for a time between the right and left half, the most active one generally prevails, so that the first impressions are finally accepted and our conduct governed accordingly. Often when a person becomes somewhat undecided and is swayed by the suggestion of the weaker half, he finds he has made a mistake, and that he might better have acted in compliance with his first thought. [Applause again, with laughter and an emphatic "That's so, sir," from old Mr. Johnson, who drops his head and looks wisely over his glasses at the audience before him.]

"In conclusion," added the lecturer, "I will say that if the gentlemen quoted are correct in their views, it is manifestly our duty to educate both hemispheres of the brain. It is thought that the exercise of the left arm and leg will cause a larger supply of blood to go to the right half of the brain, while the movements which they make under the direction of the right hemisphere will impart greater mental activity and growth to the latter. The advice of these scientists is therefore that you show no partiality to the right arm or leg, but give at





equal chance to the left arm and leg in all that you do with your hands and feet.

"Now," remarked our young speaker, as he retreated to the back of the platform, "if any one has any questions to ask, I will, so far as I am able, answer them."

As Sammy sat down, there was a perfect uproar of applause from feet and hands, old Mr. Johnson rising from his seat in the effort, while the countenance of Doctor Hubbs looked as if a fatter and healthier man had slipped into the place of the one who had occupied the same chair at the beginning of the exercises. As the Doctor and the old gentleman, reaching across the platform behind Sammy's chair, shook hands of congratulation, they were moved somewhat suddenly again to their places by a voice from the audience asking :

"Doctor Tubbs, sar, du de narves I feel wid as well as dem I moves in walkin' cross ober at what you calls de madulli oblongarti ? "

[This was Doctor Winkles, disguising his speech as effectually as he had done his person.]

"No," replied Sammy, not rising from his chair, "the crossing of the nerves which control motion



takes place at the medulla oblongata ; but the nerves with which we feel cross each other throughout the length of what is called the spinal cord. The crossing of the nerve fibres or filaments in the way I have described is what is technically called

the decussation of the nerves."



THE YOUNGER SISTER.

The whole Tubbs family smiled when Sammy made use of this big word, and one of the younger sisters nearly crammed her handkerchief into her mouth when she saw Sammy looking at her. The attention of all was again attracted to the strange colored man, who addressed another question to the young lecturer as follows :

"How big am de hemispheres ob de brain as you calls um ?"

"Doctor Dalton tells us that they constitute





about nine tenths of the brain," replied Sammy, still sitting.

"S'pose you cut dem ar hemispheres all 'way, what would 'come ob a fellar?" again inquired the disguised doctor, whom all supposed to be a colored person.

"You remind me," said Sammy, coming forward upon the platform with a bland smile, "of a white friend of mine named Doctor Winkles; still I will answer your question so far as I myself know. The same authority I just before quoted tells us that they may be removed without caus-



THE DISGUISED DR. WINKLES.

ing the loss of the senses, power to move, etc., but that memory will be destroyed, will be rendered inactive, and the power to form mental associations lost. The experiment, I am inclined to think, has never been tried upon man; probably





my friend over there who asks the question would not like to have it tried upon him [laughter], but the effects of disease on the hemispheres of the human brain are quite the same. There seems to come on, gradually, loss of intelligence, memory, and judgment. But with the vegetative nervous system undisturbed, a healthy man having the hemispheres removed would very likely live as long as food could be introduced into his stomach and air into his lungs,—live indeed like a vegetable, a tree, or a cabbage.” [Applause.]

“You tole us dat de front an’ upper part of de brain is called de Cebrium. What you call de back brain,” asked the strange man.

“I said,” replied Sammy, “that the front brain was called the cerebrum; in answer to your question I will inform you that the back brain is called the cerebellum, and, to answer in advance what would probably otherwise be the next question, I will tell you what it is supposed to be for: Flourens, a noted physiologist, thinks it possesses the power to co-ordinate or regulate those movements which we intentionally make with our hands, feet,





or other parts which are under the control of our voluntary nerves."

Everybody stared at the strange man as Sammy was answering the question, and clapped their hands when the latter concluded.

Old Mrs. Tubbs turned to her husband and asked, so loud that nearly everybody in the two rooms heard her—"Who's dat man 'dat tinks he knows so much? I nber see um here afore."

"Gess he's canal-boat cook or chimney-sweep," answered old Mr. Tubbs, with a chuckle.

"What's dat dulla oblongarter you spoke 'bout?" asked the strange man, speaking again notwithstanding he heard the criticism passed upon him by the elder Tubbs.

"The medulla oblongata contains the pneumogastric ganglion, which is sometimes called the 'vital point,'" replied the young lecturer, still able to keep up with what he supposed to be a second Doctor Winkles, not for a moment mistrusting that it was Doctor Winkles himself. "Physiologists tell us," Sammy went on to say, "that the removal of this knot would so affect our breathing-organs that respiration would instantly stop. In





other words, to remove it, or I may even add, to prick it with any sharp instrument, would cause instant death." [Applause.]

When Sammy concluded speaking, and while the applause which followed was going on, Doctor Hubbs reached over to old Mr. Johnson and inquired of him if he knew who that colored man was. Mr. Johnson shook his head, saying: "Really, sir, I do not know, sir; he seems determined to learn all he can, sir; that's right, sir; Doctor Samuel Tubbs, sir, can answer any question he can ask, sir; rely upon that, sir." This last sentence was uttered with decided emphasis and a confident shake of the head.

At this moment Sponsie came bounding into the room from an upper apartment, from which he had escaped through the carelessness of some one. First he paid his respects to Doctor Hubbs, by jumping into his lap; then to Mr. Johnson, by leaping upon his shoulder. This little act was not on the programme of the evening's exercises, but it greatly amused the people, especially when he took the old gentleman's spectacles from his nose and put them on his own. Espying Mrs. Millstone.





he dashed aside the glasses as carelessly as if they had been made of steel, and went leaping forward to where that lady was sitting.

Doctor Winkles, seeing that the monkey seemed bound to pay his respects to everybody he had ever met before, became nervous lest his identity might in some way be revealed, and arose from his chair to go, when by one monstrous leap Sponsie alighted upon his shoulder.

"Why, Sponsie knows that 'ere man!" exclaimed old Mrs. Tubbs.

"He do, sartinly!" echoed old Mr. Tubbs.

Meanwhile Doctor Hubbs and Sammy were intently watching the familiar attention which Sponsie was bestowing upon the stranger while the latter was making his way as fast as he could through the crowd with Sponsie clinging to his back.

Suddenly, when the strange colored man was in the very middle of the front room where every soul could see him, Sponsie seized his wig and mask, and struck an air line over everybody's head and shoulders to the platform.

Poor Winkles! there he stood in his Caucasian locks, revealing their true character, if they were





a little curly. And then he had failed to blacken all the upper part of his forehead, which had been covered by the wig ! He would have been willing now to draw his check for a couple of hundred



THE REAL MAN BLOSSOMS OUT.

more to have been translated from the home of the Tubbs to his own room !

Some of the rougher of the young colored men were so enraged that a white man should have treated the occasion as if it were a masked ball,





that they shouted tumultuously, "Put him out! put him out!" and even commenced using violence by seizing him by the collar and neck. But both Doctor Hubbs and Sammy, discovering who it was, rushed to the spot, and by their interference saved him. The Doctor was gently releasing their hands from poor Winkles' coat and neck, while Sammy bent over him much as the Pocahontas of colony times shielded the imperiled Smith. Meanwhile Doctor Hubbs proceeded to make the best explanation that was possible under the circumstances.

The moment Doctor Hubbs loudly called "Order! order!" everybody became at once seated, for the regard which the colored people entertained for Sammy's preceptor was akin to affection.

With Doctor Winkles, who had now taken his seat, trembling with fear and mortification, in a chair before him, and Sammy at his side, Doctor Hubbs proceeded to relate how desirous the former was to attend this lecture, and how fearful he himself was that his presence would embarrass the young lecturer. "And now," he said, "while I do not approve of the singular expedient my friend has resorted to, I beg of you all to forgive him, for he is





a right good fellow after all, and a great friend and admirer of Master Sammy, who has doubtless made more rapid progress than he otherwise would have done if Doctor Winkles had not been forever pursuing him with knotty questions."

By and by all were disposed to treat the matter as a joke, and old Mr. Johnson sat down by Doctor Winkles and entered into a cordial conversation with him. But this discovery was a bitter pill for the proud man who had presented himself in this disguise, and when, a few moments after, the close of the meeting was announced by Doctor Hubbs, the mortified Winkles stole out by himself and made rapid steps for home, as rapid as his weak knees would permit him to travel, for he dared not take a street-car with such a smutty face as he now bore, streaked with the perspiration which ran down his cheeks in the excitement he had passed through. He was neither a white man nor a colored man, nor yet a mulatto, for in the latter the white and black are more happily blended; he might, perhaps, have been called a brindle.

Sammy had acquitted himself so well that Doctor Hubbs had no words of censure for old Mr.





Johnson, who had caused the bills to be put up. In bidding the old man good-by, he said in a good-natured way "You seem to know Sammy's measure better than I."

As for the Tubbs family, they felt so proud of Sammy they made all sorts of excuses for him to remain at home overnight. The fact was they wanted everybody there not familiar with them to know that the young lecturer was their son and their brother. Sammy gratified them by remaining, but it was a late hour before the house was fully cleared of visitors and the lights put out. It was the great event of the day at the unpretentious home of the old whitewasher Tubbs.





CHAPTER III.

SAMMY AT HIS CHORES—THE INVITATION TO A MASKED PARTY—SAMMY AND HIS TWO MONKEYS WANTED TO MAKE SPORT—SPONSIE NUMBER 2 AS A SOLDIER—PHILOSOPHY OF MEMORY—TALK ABOUT THE BRAIN—SPONSIE NUMBER 1 BLOWING THE HORN FOR SAMMY.



OTWITHSTANDING the late hour at which our young lecturer retired last night, he is on hand before six o'clock this morning attending to his usual duties at the house of his preceptor. To one unaccustomed to seeing what is called menial labor performed by one who is capable of interesting an audi-

ence in a lecture on so difficult a subject as the brain, it would have looked strangely to see the





precocious Sammy sweeping the walk and brushing his employer's boots. A young olive-eyed German, of white skin and small brain, who occupied the same position before Sammy, left it in disgust because, as he said with a curled lip, in broken English, "I vosh no little poy to prush the valk and sweep the boots!" But in this fortunate country, where freedom was born before a dozen nests of kings were hatched to lay claims and counter-claims to the divine right to make laws and customs for the people, as in France and Spain, many of our greatest men began life in the field or work-shop, and in the performance of duties mistakenly called menial. With such humble beginnings they had no false pride to hinder their footsteps as they patiently ascended the ladder of ambition to honorable fame. Many, trying to evade the lower rounds, lose their foothold, and, falling, unsuccessfully struggle through life without reaching the position to which they aspire. Others, beginning upon the higher rounds and by some misstep losing their hold, never recover their original position, because they look with contempt upon the lower rounds whereon honest hand-labor



is struggling. Let it be the pride of our American youth to begin, if necessary, at the very bottom step, and, with firm hands, honest hearts, and clear heads, commence the difficult ascent, keeping in mind such marked examples of honorable success

as are presented in the lives of Franklin, Lincoln, and Greeley.



MINNIE UNMASKED.

Ah! our first visitor this morning is our fat friend Mrs. Millstone. She is out for an early walk, and calls to ask Sammy if he will attend a masked party at Mrs. Biddlewicker's house the coming week? Mrs. Biddlewicker wants Sammy to come in the character

of a village doctor, bringing with him the two monkeys to help make sport.

The occasion is the celebration of the birthday of Miss Minnie Biddlewicker, a bright young lady of sixteen, daughter of Mrs. Millstone's friend.





By the way, my young readers have seen how folks look in mask in our second volume where the picture of the fantastics occurs ; but to remind you still again, I here show you how a good-looking girl appears first without a mask and then with one.

Sammy has never attended a formal party, and the invitation causes him infinitely more embarrassment than when he was asked by his old friend, Mr. Johnson, to deliver a lecture. He regarded that request as of too little consequence to consult his preceptor about it, for he had become accustomed to



MINNIE MASKED.

standing up and talking before a room full of his colored friends. But this is a novel invitation ; so, excusing himself to Mrs. Millstone, he at once flies upstairs to Doctor Hubbs' room to consult him before making a definite reply. He finds the





Doctor just about ready to descend to his office, and the two, joining hands familiarly, like father and son, go downstairs together.

Mrs. Millstone, after cordially shaking hands with the Doctor, explained to him that Mrs. Bidlewick had determined to give her daughter Minnie a party on the anniversary of her birthday, and that Doctor Winkles' curious adventure of the night before had suggested to both of them that the affair might be made more jolly if they should invite the young people to come in mask.

"Next," said she, "we happened to think it would be a great novelty if we could have Sammy attend with his two pet monkeys. It would make such lots of fun, you know."

In this suggestion the Doctor concurred, but, drawing near to his fat, jovial-looking friend, he whispered in her ear that it would be necessary to have Sammy keep his white mask on after the rest should unmask; otherwise some silly girl or boy would object to his presence on account of his color.

"That's so!" exclaimed Mrs. Millstone in a thoughtful mood, and dropping her eyes for a





moment as if this idea had not entered her mind before. "Well, well," she said hesitatingly while raising her head again, "we can somehow manage that. You are willing that he should go?"

"Certainly," responded the Doctor, raising his voice from the low, confidential tone in which he had a moment before been speaking. Turning to Sammy, he asked: "I suppose you would like to attend, wouldn't you?"

"How could I possibly do it and attend to my evening class?" inquired the faithful lad, who never thought he could neglect a duty for the sake of pleasure.

"There is an obstacle," said the equally faithful Doctor, addressing his friend Mrs. Millstone.

A discussion of some length ensued, resulting in the decision that Sammy could go after he should get through with his duties; as his hour with his evening class closed at nine o'clock.

Before the conversation was concluded, Sponsie Number 2, who was now feeling pretty well again, bounded into the room arrayed in a cheap soldier's uniform, which Bridget had made for him, and in which she was drilling her pet to be ready, as she



said, "to bate the b'ys in grane on St. Patrick's Day," when this great Irish holiday should again come round.



SPONSIE NUMBER 2 AS A SOLDIER.

"Carry arms!" exclaimed Sammy, who knew what Bridget was up to.





In an instant the monkey stood up, and placed in true soldier-like position the wooden gun which he held in the right hand, while the left fell perpendicularly to his side.

With equal promptness the monkey curiously enough responded to various other orders which Sammy had picked out of the Soldier's Manual for the use of Bridget, who thought that she knew enough, with these new acquirements, to command a regiment on the field of battle.

In the midst of it all, Mrs. Hubbs, attracted by the loud laughter, entered, and was as much surprised as all, excepting Sammy, had been at what Bridget had taught the invalid monkey. It was then talked over, and determined as best that Sammy should take two characters at the coming party in mask: one as a captain of militia, and drill the two monkeys to perform their parts as soldiers together; the other as doctor, in which the monkeys would be taught to play sick, and take what should look like sugar-coated pills, when in reality the doses should be made wholly of sugar.

With these preliminary arrangements effected Mrs. Millstone departed, while Doctor and Mrs.





Hubbs, who could not persuade Mrs. Millstone to remain, descended to the dining-room at the call of the breakfast-bell. Sammy was at his post as usual with tray in hand.

Doctor and Mrs. Hubbs congratulated the young lecturer on his success, and Mrs. Hubbs expressed great regret that she was not present. Both, however, were guarded in their praises lest even so sensible a young head as Sammy's should be turned and spoiled by flattery.

The fact was, nobody could have been more surprised than Doctor Hubbs himself was at the ease with which the young lecturer delivered an address without written notes. The Doctor had never attended one of Sammy's evening classes where the boy, little by little, had acquired the necessary self-possession to speak before an audience. Nor was he aware that his pupil knew so much more than he had taught him about the brain.

When all had breakfasted and Sammy had done his kitchen chores, the latter returned to the office room to finish some little matters at which he was working when he was interrupted by Mrs. Millstone's call.



The Doctor was already there bending over his desk. Seeing the young prodigy enter, he raised his head and, brushing aside some manuscripts upon which he was engaged, asked :

“ Where did you get hold of all that information about the brain which you gave in your lecture last night ? you used but very little of that to which I called your attention yesterday afternoon.”

“ From the papers,” responded Sammy. “ I have read the reports of the lectures by Doctor Brown-Séguard, and those by Doctor T. S. Lambert ; and many other good things I have found in the newspapers.”

“ Well, our journals are really getting to be great educators,” remarked the Doctor, “ notwithstanding the adverse opinion of the late Dr. Rush, and the fact that Mr. Parton accuses them of telling frightful whoppers now and then. You seem to keep up with them pretty well, Sammy ; how do you manage to get time to do it ? ”

“ Oh,” replied the young lecturer, carelessly drawing a paper from his pocket, “ I always carry something good around with me, and then when





I have an unoccupied moment I improve it. For instance, this paper—*The Golden Age*—contains a scrap from Doctor Carpenter in which he explains how we remember what we learn in our early years better than we do those things we acquire later in life. He tells us that it is when the brain is growing that the direction of its growth can be most strongly influenced. He says about the same thing as if he should tell us that the brain gives out a little nerve-memorandum every time anything is heard or learned. It is as if I should write every new thing I hear or see on a slip of paper and put it in my vest pocket for future reference whenever anything occurs in any way relating to any one of them. But Doctor Carpenter calls these little tablets in the brain nerve-tracks; he says they accumulate as we keep learning something, and that it is in this way we gather impressions or traces, which may be brought within the sphere of consciousness, whenever the right suggesting strings are touched."

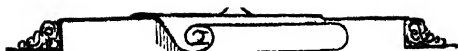
The boy stopped to think a little, and the Doctor, supposing he had finished, remarked: "But this does not quite explain why we remember bet-



ter what we learn in our younger years than that which we acquire in later life."

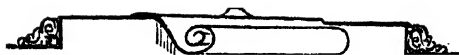
"Well," resumed Sammy, "I have not told you all yet. Doctor Carpenter says that those nerve-tracks with their accompanying fibres which are formed in early life, secure a firmer hold in the brain than those which are formed in advanced age when the nutritive machinery is less active and its deposits less lasting. The stomach does not digest the food as well, the little corpuscular moners of the blood do not so perfectly transform the food-particles into animal fibre, and the little nerve and brain builders do not do such good work in old age as in youth; so that while the less strongly built nerve-tracks crumble away in the changes which are constantly going on in the body, those which were laid in the substance of the brain when the bodily machinery was younger and stronger, are able to take to themselves new building material for their perpetuation much more readily than those formed in later life. The old and firmly established nerve-tracks formed in youth are what enable the old man to recall things which happened* years ago. The new and less





firmly established nerve-tracks, which are formed by what the old man sees and hears in his old age, crumble away, as the old atoms of the brain give place to the new ones, and in this way the later nerve-tracks are constantly being destroyed, and new ones, recording still more recent events, forming to take their places. It is as if I should make marks on my slate now with a hard pencil so deep that they can never be rubbed out, and then as I grow older I should keep substituting a softer pencil. As I sponge off my slate every morning for my day's diary, the early marks of youth would persistently remain, while those made by the softer pencils of age would be wiped out to make room to put down the last events that may have happened. So with the nerve-tracks, those laid in the brain during youth are deep and enduring, while those formed in later life daily give way to still newer ones no less feeble and perishing."

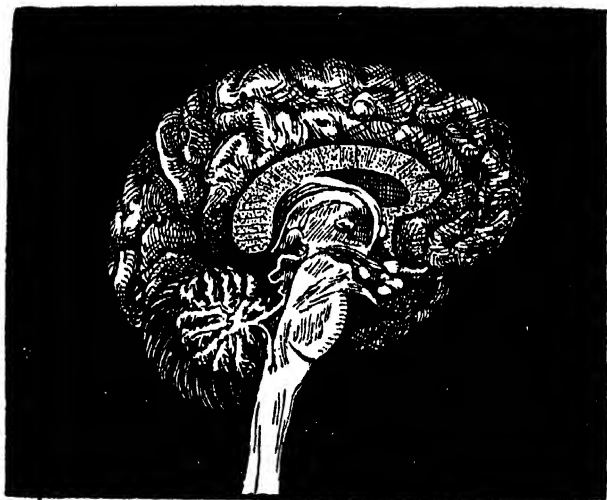
"Let me see that article," requested the Doctor, reaching to Sammy for the paper. As he looked over what was presented under the head of "Persistence of Early Impressions in Old Age," he was both surprised and pleased to find that the



boy had given the substance of the article in his own language, with original explanations which would have made it plain if presented to the dull-est pupil in his evening class.

“That is indeed very interesting,” remarked the Doctor, as he handed back the paper; “and you have made the idea clearer than the author himself has done. If, as Doctor Carpenter believes, everything which we see, hear, or think, leaves a nerve-track in the brain to fix it permanently there, we may be able to account for the fact that the convolutions of the brain increase from childhood to middle age, for the brain must be literally indented over and over again with nerve-tracks, and the skull of a middle-aged brain worker must be like the miscellaneous pigeon-hole of a counting-room, crowded and stuffed to overflowing with memoranda. Then the gradual crumbling away of many of the least enduring of these nerve-tracks with their accompanying fibres as one advances in life may account in part, at least, for the fact that after the age of fifty the brain loses one ounce in weight in every ten years.”

"The brain is a wonderful, wonderful organ," continued the Doctor, as he arose to take from the shelf two plates which he proceeded to show Sammy. "This first one," said he, "which is supposed to represent the brain just as it would look



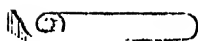
A SECTION OF THE BRAIN.

if one hemisphere or one half of the whole brain were to be sliced right off on the side, gives you a good idea of the convolutions which may be seen all over its upper surface. Right down under the middle of the convolutions is the Corpus Cal-



losium which is made up of the nerves which connected that half of the brain with the half which has been cut away. The little dots are intended to represent the ends of the nerve-fibres which made the connection between the two hemispheres. That white body that goes downward out of the brain like a stem contains in its upper part what is in difficult words called the Pons Varolii ; next below that is the Medulla Oblongata, and this is the enlarged end of the spinal cord. The stem itself is a part of the spinal cord which runs down through the bony canal of the spinal column. The larger body under the convolutions and back of the white stem is the left half of the little brain or Cerebellum. Steele describes this in plain language which even your class could understand.

“ He says: ‘ It is about the size of a small fist. Its structure is similar to that of the larger portion of the brain or Cerebrum ; but instead of convolutions, it has parallel ridges, which, letting the gray matter down deeply into the white matter within, give it a peculiar appearance, called the “ arbor vitæ, or tree of life.” (This, you see, looks like a leaf upon the Cerebellum in the pic-

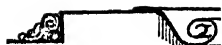


ture ; whereas it is what that portion of the Cerebellum looks like when it is cut in halves, and the cut surface is shown to you.) This part of the brain is the centre for the control of the voluntary muscles. Persons in whom it is injured or diseased walk as if intoxicated.' "

" What," interrupted Sammy, " did you tell me yesterday afternoon that the Pons Varolii was for ? I have forgotten."

" It is," replied the Doctor, " called ' the bond of union ' connecting the Cerebrum above, the Medulla Oblongata below, and the Cerebellum behind. It is made up of numerous fibres going up and down and crosswise, and these fibres are intermixed with that gray matter which seems so inseparably connected with the nervous system. The Pons Varolii, indeed, may be said to stand in something of the same relation to the Cerebrum, Cerebellum, and Medulla Oblongata, that the Corpus Callosum does to the two hemispheres of the Cerebrum. But the latter unites only two parts of the Cerebrum, while the former unites all three portions of the brain as I have just explained to you."

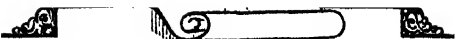
" The connecting link between the man and the



monkey, and between the monkey and the coconut!" ejaculated Sammy in a humorous mood, which flashed from his eyes and glistened between his lips.

"Well, yes," answered the Doctor, laughing at the boy's remarkable comparison. "By a stretch of the imagination you might say that it connects the vegetable man with the animal man, and the animal man with the intellectual man; and yet it would not be scientifically correct, for all the higher forms of animal life below man have a Cerebrum, Cerebellum, and Medulla Oblongata, similarly united, while trained monkeys appear to nearly as good an advantage as uncultivated men. The higher development of the Cerebrum, the multiplication of the convolutions of the brain, and the greater amount of gray matter are the distinctive forms and qualities of the brain of man as compared with that of the brain of the well-developed animal, outside of the human species. It is estimated that the surface of the convolutions of a well-developed human brain will sometimes reach six hundred and seventy square inches.

"In the other plate," continued the Doctor,



picking up the one which had been accidentally dropped during the conversation, "you have another view of these convolutions, and in addition thereto the nerve branches which go to the face, eyes, nose, mouth, ears, etc., etc.

"By this picture you have an opportunity to see how what are called the cranial nerves are reaching forward to place us in communication with the outer world through the instrumentality of the eyes and ears, with which they are connected, and to enable us to enjoy the fragrance of the flowers, and the delicious flavor of fruits, etc., by nerves which penetrate the nostrils, for it is believed by many that our ability to taste and to determine flavors, as well as to detect odors, is dependent upon the olfactory nerves. The little nerve branches ending just back of the eye-ball, are those used in moving the eye to the right and to the left, and upward and downward. The largest nerve with its branches reaching forward and downward, supply the eyes and nose still further, and also the teeth and jaws. It is believed by physiologists that this nerve assists us in our sense of taste. It is surely the nerve which reports to



the brain the painful operations of the dentist. Toothache and neuralgia move along in these nerve-tracks, and communicate their existence to the brain. The other branches I may explain at some future time," concluded the Doctor, "for



SECTION OF THE BRAIN WITH CRANIAL NERVES.

neither you nor I can spend more time this morning in talking about them. You must go to your Dispensary, and I must make some calls."

Sammy suddenly casting his eyes to the clock, and observing the lateness of the hour, did not





stop to assent or dissent, for it was about five minutes of ten o'clock.

In a moment more both the Doctor and his impatient pupil jumped into the phaeton, for the former had intended to drive in the direction the latter wanted to go. But the conversation about the brain and nerves was not resumed during the drive, for Sammy was impatient to reach his Twenty-seventh Street home, while the mind of his preceptor was preoccupied with matters appertaining to his patients. As the two drove up in front of Sammy's sign, they were amused to see Sponsie Number 1 seated on the railing of the front veranda, blowing as hard as his lungs would permit him, a large old-fashioned dinner horn which was formerly used on the old plantation in Tennessee. The animal seemed to realize that his young master was behind time, and as he had seen old Mrs. Tubbs nearly blow her cheeks off on the antique-looking instrument on a few occasions to bring home old Father Tubbs when he was white-washing in the neighborhood, the monkey evidently thought he would try its virtues on the younger Tubbs. It so happened that the result



was highly satisfactory to Sponsie's mind. It would be difficult to convince him that he and the old horn did not bring Sammy to his post of duty.





CHAPTER IV.

SPONSIE NUMBER 1 AS A SOLDIER—A SAMPLE OF HIS BRAVERY IN THE FACE OF DANGER—HE SEEKS SAFETY IN BLÜCHER'S KENNEL—THE STORY OF CHRISTY—GREAT FUN AND LAUGHTER IN THE ALLEY—DOCTORS WINKLES AND HUBBS TALK ABOUT THE BRAIN—THE QUARREL BETWEEN SPONSIE NUMBER 1 AND BRIDGET—THE CAUSE DISCOVERED.



HOWEVER successful Sammy may be in making a home-guard of Sponsie Number 1 in a time of profound peace, it is evident from what I am about to tell you that he could never make of him a good soldier to send to the front in time of war. Shortly before twelve o'clock, or in other words, a little before the closing of the Dispens-





sary hours yesterday, Sammy dispatched one of his sisters with a message to Bridget to send the soldier's toggery and gun. He wanted to put Sponsie Number 1 through a short lesson. By the time the sister returned, the brother had finished his Dispensary duties for the morning. The next thing in order was to make a "bold soldier-boy" of the courageous young rider of the noble Blücher. Surely a fellow who could so bravely ride the big dog, and who had the fearlessness to attempt to break him to the harness, would be just the chap to put on the soldier-straps, and shoulder a rifle cannon if necessary.

The putting on of the regimentals was an easy thing to do, for the monkey entered right into the spirit of the thing! He had hardly patience to wait for the last button to be put through its button-hole. The moment it was done, he leaped upon the bureau in great haste to view himself in the mirror. Sponsie strutted across the bureau watching his own movements with as much satisfaction as a young military prince could have done, when dressed for parade. He imagined himself equal to any of the Seventh Regiment





boys, and very far superior to the Billy Wilson Zouaves. "Now," said Sammy to his sister, "bring me the gun." As the girl re-entered the room with this harmless wooden instrument, a scene ensued which cannot be described with



LIKES THE CLOTHES.

printer's ink! Sponsie, seeing something in the shape of a gun, sprang frantically from the bureau to the top of the mantel-piece, and from there to a high shelf, knocking off books, papers, and a large glass lamp which scattered its broken fragments in all directions when it struck upon the floor. Fortunately it did not contain any kerosene or sperm oil. What a chatter! Then again what another jump! Through sash and glass, slam-bang, then into the back alley to where the grand-looking old Blücher lay before his kennel. As Sponsie approached him, the noble animal





sprung up on his fore feet, leaving his hind ones still reclining upon the straw, and put on an inquiring look as if to ask—"What's up? what's the matter?" Sponsie, without stopping to give any satisfactory explanation, dodged to the very furthest corner of old Blücher's inviting home and buried himself, soldier's clothes and all, beneath the straw bedding.

It is not likely that Sammy or his sister could have found the deserter if Blücher had not looked so wondrous wise.



"The dog knows just where Sponsie is," exclaimed Sammy, ap- BUT DON'T CARE FOR THE GUN. proaching the kennel. "Drop that gun, Esther," added he in a low voice, presenting the palm of his hand behind him in a cautioning manner, "or our brave soldier-boy will have another





fit if we succeed in finding him." As the girl dropped it, old Blücher picked it up between his teeth, little thinking that this was the formidable instrument that had frightened Sponsie. Rising now upon all fours, the dog walked about, wagging his tail, and carrying the gun cross-wise in his large, laughing mouth, looking still as if he would like to know—"What's going to be done now?"

Sponsie, seeing from his hiding-place that old Blücher had the terrible weapon in his mouth, crept out from the kennel, and finding that the dog was not afraid of it, undertook as frantically to get the gun away from Blücher, as, a little while ago, he had tried to get himself away from the gun. There was a struggle for a little time, for playful dogs do not like to let go such things, but seem rather readier to sacrifice their teeth than to give up either a stick or a bone when once they have picked one up. With Sammy's and Esther's help, however, the gun was taken away from Blücher, and then you should have seen our bold soldier-boy strut up and down the alley, with the gun against his shoulder, as he had seen the boys in a target-excursion carry theirs.





The cowardice of the monkey when he thought there was danger, and his exceeding bravery when he knew there was none, reminded Sammy of a play in which the late George Christy used to take



THE BOLD SOLDIER OF THE ALLEY.

prominent part. There was supposed to be a terrible quarrel upon the stage between about half a dozen fellows on one side and as many more on the other. George would lead up his braves, brandishing his fists in a most fearless manner, till within





arm's length of his adversaries, when he would faint dead away and fall into the arms of his comrades. By the time he was dragged away to a safe distance he would come to, and then with the greatest display of courage, as if he had not already faltered, he would again advance, telling his boys behind him in a most assuring tone not to be afraid—"I am here! boys, I am here!" But his encouraging commands would again die out as he met his combatants face to face, and over and over again would he be borne to the rear by his companions, as limp as if life had departed and left only some worthless remains. Well, Sponsie was just such a brave soldier-boy as George was in that bit of acting. Sammy and Esther nearly split their sides over Sponsie's manœuvres, and the story of Christy, which the former told in a graphic manner, playfully illustrating with his own person the fearless advances of the comic actor, and then the swoon which followed, falling heavily against the fence, while his sister made the alley ring with merry peals of laughter. After putting Sponsie through his first drill our young lecturer turned his steps towards his Broadway home, shaking his sides while thinking





of what he had to tell the Doctor. But on arriving he found Doctor Winkles there. The boy was unable to feel quite the same respect for Doctor Winkles that he formerly entertained, and meeting him so unexpectedly at this time, it dampened somewhat his glow of humor. But he managed to tell both of the doctors the story of Sponsie's fear of the gun and of his pride upon being drilled to the hazardous duties of a holiday soldier. All laughed heartily over the story of the affair, and it was agreed all around that Sponsie would do better on parade or on a target-excursion than he would for service in the field.

The first word spoken by Doctor Winkles, after the merriment had subsided, was to make explanation, in the presence of Sammy, with reference to the course he pursued on the night of the boy's début as a lecturer. He told the latter that he should have presented himself without disguise if Doctor Hubbs had not so strongly urged him to keep away altogether. "But," he said, in a patronizing tone, "to keep away, you know, Sammy, I could not do; for I feel as much interest in your progress as Doctor Hubbs does, though I confess





I could not have proved so successful a teacher as he has done.

“My Louis Napoleon,” he continued, “is just as big a dunce as ever he was. His bones lengthen and his muscles grow, but it is difficult to observe much development of brain. Sometimes I think I am to blame for it, but when I consider how much the brain differs in quality in different people of the same race, I console myself with the reflection that Louis has a better stomach to digest food than he has brain with which to digest any idea I may have ever attempted to work into his head.

“By the way, friend Hubbs,” continued Doctor Winkles, addressing himself this time to Sammy’s preceptor, “what do you think of Buchner’s theory, that it is the peculiar function of the brain to secrete thought, just as it is the function of the liver to secrete bile?”

This curious idea made a new nerve-track in the brain of our young lecturer. A new convolution was doubtless added somewhere, and fresh gray matter flew to the place to cover the newly sprouted brain-fibres. He now watched with interest his preceptor, who proceeded to reply :





"Well, I confess I hardly know what to think of it. It seems as if the human brain was a 'thing,' to use an expression of Sammy's, quoted from Lord Dundreary, 'that no fellow can find out'! I have been greatly interested with what the great German physiologist has written, but my own views are more nearly represented by the writings of Fernand Papillon."

"I have not met with any of his productions, although I have heard of them," said Doctor Winkles. "He, doubtless, would consider the views of Buchner as too materialistic, would he not?"

"He believes and argues in a way not to be easily answered," replied Doctor Hubbs, "that the brain and nerves are only the instruments of the soul. In an article on the 'Physiology of the Passions' he enters into a lengthy argument to show that the brain is the centre of passion as well as of intellectual phenomena, and then further to demonstrate that nothing can be found in the nervous ganglia or brain to fully account for them, but that we must at last admit of the existence of a psychic faculty or soul. I have not the time now to give you the points presented in the article in



their logical order ; to present them otherwise would be to greatly weaken their force. You had better read the article yourself. It is in the March number of the *Popular Science Monthly*. He concludes what he presents at much length with substantially



COURAGE UP. (See page 75.)

these words : ' Passion resides in something that is neither the brain nor the nerves nor the muscles ; a something which perceives, enjoys, and suffers, and which moves the entire body in unison with its own feelings. Now this conscious faculty,





he says, this faculty of perceiving causes in no wise mechanical, is the soul. The more deeply we study the physiology of the passions, the more are we convinced that the agitation of the nervous and motor energies is but the outward manifestation of



COURAGE DOWN. (See page 76.)

deeper causes which we call psychic. So, too, he finally concludes, the more we study into matter the better we comprehend that it is only an external form, a kind of clothing to something which we cannot see. Thus does science ever lead us back





to that eternal and mysterious thing we call force, and, beyond force, to that which we call spirit."

Sammy was quite as interested a listener as Doctor Winkles, as he, to save time, polished his preceptor's case of instruments and kept his eyes for one moment upon his work and then upon Dr. Hubbs alternately.

Doctor Winkles, noticing this fact, turned to the boy and asked: "What do you think about it, Sammy?"

"Well, I don't think that the brain is an organ for secreting thought the same as the liver is the organ for secreting bile," replied the bright young man, "although it seems to have a way of working up into ideas the food it extracts from the blood, which in turn has had its supply from the food received by the stomach."

The eyes of both doctors were now fixed with surprise upon the remarkable lad as he proceeded:

"I was reading something by Huxley the other day, in which he said that every word uttered by a speaker cost him so much bodily loss. In the strictest sense, he informed the reader, that the





speaker burned that others might have light. So much eloquence, so much of his body resolved into waste matter. This loss of substance he further said we must make up by taking food. This would look as if Doctor Buchner's theory was correct, but it seems there is another side of the question yet, as presented by the one whom Doctor Hubbs has been talking about, and this better accords with my notion."

"Your head is level!" exclaimed Doctor Winkles, looking greatly pleased. "One thing is evident enough," he added, assuming a more serious expression, "the brain itself is a physical organ, and must be supplied with food when it is at work just as much as the lungs, liver, or stomach must be fed while attending to their functions. And Mr. Huxley's statement can be easily reconciled to the position taken by Mons. Papillon."

While making the foregoing remark Doctor Winkles arose from his chair, and drawing on his overcoat, prepared to depart. As he shook hands with Sammy, who had come to assist him in putting on his over-garment, he asked in a tone that was earnest as well as humorous :





“ You have forgiven me for what I did the other night, haven't you ? ”

Sammy looked his interrogator pleasantly in the face, but hesitated, for he hardly knew whether or not his feelings would warrant him in saying yes. The affair referred to, whether precisely as explained or viewed simply as a joke, was one which aroused in the boy's breast not a little of indignation. In other words, his soul had been offended, and this psychic faculty stirred his nerve-fibres to an emotion which he could not resist. As Mons. Papillon would say, the offence had no mechanical cause with which to agitate or irritate the nerve-centres. Finally Sammy said, as he squeezed the Doctor's hand in a more cordial manner, “ I'll try, Doctor, to do so.”

Doctor Hubbs, in bidding his friend good-by, assured him that Sammy's disposition was quite too amiable to harbor hard feelings against any one for a great length of time, and that he had no doubt but that the wound that the boy's psychic faculty had received would in time fully heal. “ But you know,” he added, “ you could not have committed a greater offence against Sammy and





his people than to burlesque their color and speech on an occasion like that, especially after the family pride had been thoroughly aroused by Sammy's remarkable success."

Doctor Winkles really left the house with something pricking his inner consciousness, or soul, very much as a sliver tortures the flesh. He might be said to be suffering with a moral sliver in his psychic faculty, and he greatly regretted that he had not had a little "more fore-sight" as well as "hind-sight," as Mr. Beecher once aptly remarked in explanation of something he had done which was sharply criticised.

On Sammy's going down to the kitchen to put away the chamois and whitening with which he had been polishing the Doctor's instruments, he found Bridget and Sponsie Number 2 in a boisterous quarrel. Bridget was holding in one hand the soldier-clothes which Sammy had returned on coming home from Twenty-seventh Street, and with the other she was shaking her finger and scolding the monkey in a loud tone of voice, while the little fellow, from a perch on the top shelf of the tin-closet, was chattering back in the wildest manner. Between



the scolding of Bridget and the chattering of the monkey, Sammy could not have made his voice heard if he had attempted to speak at the moment of his entering the kitchen. It seemed that Sponsie Number 2 would not allow Bridget to put the soldier's clothes on him. This was to her a mysterious freak on the part of the little fellow, for heretofore nothing had given him greater pleasure than to don the soldier-coat and pantaloons with stripes at their sides and go through the drill. The monkey enjoyed it because it seemed to make him feel as big as a soldier, and Bridget was equally pleased, for it raised herself in her imagination to the dignity of a commanding officer. She always felt like one born to command, and the drilling of Sponsie Number 2 had afforded her the first opportunity of



THE QUARREL.





gratifying this part of her ambition that she had ever experienced. But now, for some, to her, in-



THE CAUSE,

explicable reason, even this bit of keen pleasure was denied her, for her "disorderly private" as she called him, would not allow the uniform to be put on.

"I know what's the matter," said Sammy with a wise look, after the tumult had somewhat subsided. "He knows by the smell of those things that Sponsie Number 1 has had them on."

"Faith an' yer right Sammy," exclaimed Bridget. "That's jist what's the matter! Ain't he a smart b'y, indade? be the powers, an he aise," both asked and answered the girl in the same breath, rolling her remarks in loud laughter, while the monkey projected his head from his retreat with his sad face and blinking eyes, as if to know what





had so suddenly changed the violent temper of the girl.

Our young lecturer ran upstairs and communicated the state of affairs in the kitchen. "I do not," he said, "know what I am to do if Sponsie Number 2 will not train with Sponsie Number 1. I may be compelled to leave one of those chaps at home from the party."

"If," remarked the Doctor, with a broad smile, "you could find the nerve-tracks in the monkey's brain which recorded the fact of his imprisonment by Sponsie Number 1 and his sufferings while shut up and hazed by the latter, you might perhaps rub or cut them out."

"Pity he isn't about eighty years old," replied Sammy; "then they might crumble away without assistance. As it is, I fear they are the enduring nerve-tracks of youth."

"Yes," added the Doctor, "and his nerve-centres have been stirred by causes which are both mechanical and psychic."

Just at this moment, the conversation was interrupted by the door-bell, and not for the time resumed, for a patient was ushered into the Doctor's





consultation-room. If Sammy should hit upon a plan effecting a treaty of peace between his two little mischief-makers, you shall hear the news before anybody else receives it. The prospect just now is, that one of those Sponsies will have to stay at home from the Biddlewickers' masked party.





CHAPTER V.

THE MILITARY DRILL OF THE MONKEYS—THE
BATTLE OF SHIN-BONE ALLEY—THE TWO SPON-
SIES PUT TO FLIGHT—THE PROGRAMME OF
THE MASKED PARTY—SAMMY'S ARGUMENT IN
FAVOR OF PHRENOLOGY—OLD MR. JOHNSON'S
CALL.



IF my young readers could have gone over to the Dispensary with Sammy the day following the one duly chronicled in the last chapter, you would have had a jolly time of it, if your clothes had been sufficiently loose to give play to your vibrating ribs and muscles. If in tight clothing, something would have had to give way. The event is now known among the colored





people as the Battle of Shin-Bone Alley. The alley was thus named, because old Blücher had scattered so many bones along its cobblestone paths.

The facts are briefly as follows: Mrs. Hubbs on hearing that the invalid monkey would not put on his soldier-clothes, because Sponsie Number 1. had been wearing them, placed a few shillings in Bridget's hand, for the purpose of purchasing the material and having made up a new suit of regimentals for the fastidious trooper. Bridget made haste to perform her part, and had the suit all ready that very night. The next morning, after Sammy had got all of his morning work done, he took Sponsie Number 2 on his right arm, and with the soldier-clothes tied up in a handkerchief in the left hand, he wended his way to his 27th Street quarters. It was only half-past eight o'clock, and he had therefore an hour and a half before the commencement of his dispensary duties in which to drill the two monkeys.

Esther dressed Sponsie Number 1, and gave him a few lessons in the kitchen. Sammy put the soldier-toggery on Sponsie Number 2, and gave him a little drill by himself in the Dispensary. All



these preliminaries over, it was concluded best to take the two monkeys to the alley, and have them march towards each other, thus having them meet for the first time since their separation under the restraints of military discipline.



THE ADVANCE OF SPONSIE NUMBER 2.

Sponsie Number 1 was put down on his feet near old Blücher's kennel which was close by the house, and Sponsie Number 2 was taken to the outer end of the alley, where it merged into the street. The large gate at the entrance was closed,





to prevent either of the soldiers from deserting. The children gathered about in great numbers to witness the sport. Esther again drilled her home-guard at her end of the alley, while Sammy drilled his "bold soldier boy" at his end, a slight bend in



THE MARCH OF SPONSIE NUMBER I.

the alley and a woodshed upon it, preventing the two monkeys from seeing each other.

A nice little colored boy, who lived next door, acted as Sammy's aid-de-camp, and by the time it was thought that the young soldiers had been





sufficiently drilled to maintain good order when brought face to face, the aid-de-camp was sent forward to Esther, with orders to advance with her guard, while Sammy should advance with his. In a few moments all was ready, and the aid-de-camp returned to his commander. Both of the monkeys, viewed as they were by so many children, felt their importance. Each one advanced with a feeling of haughtiness which made them look nearly twice as large as they really were. It was believed that under the influence of soldierly pride each would acquit himself with credit both in respect to discipline and valor.

Esther was marching by the side of her brave, and behind was old Blücher, with head up, and tail up, one end wagging quite as much as the other, while a score of little boys and girls brought up the rear, dividing their attentions about equally between the dog and the monkey.

Sammy was by the side of his proud-looking veteran, followed by his aid-de-camp and lots of little folks.

By and by, as the two groups approached in the bend of the alley, the soldiers put on additional





airs, for they were too giddy with vanity to see each other. Their bedazzled eyes only took in the dark outline of the crowd on either side.

By a signal from Sammy, the command—"Halt!" came simultaneously from the lips of Esther and her brother. Then, with hardly a moment's pause, the orders were given—"Ready! aim!"

The stocks of both muskets flew to the shoulders of the combatants, who were supposed to be going through with a sham battle, and the barrels were levelled with due precision at each other, when, as suddenly as if a bolt of lightning had fallen between them, the muskets were dashed to the ground and the two braves retreated in opposite directions from each other, swinging their tails wildly about from under their regulation coats, and chattering as if each had received a mortal wound, each, too, followed by his gang of uproarious attendants, laughing as loudly as the monkeys were chattering. The truth of the matter was simply this: at the command—"Ready! aim!" each monkey for the first time became aware of the presence of the other. Hence the fright, hence the throwing away of weapons, and hence the



frantic retreat, more disorderly, indeed, than that known in our military annals by the name of "Bull Run."



THE BATTLE OF SHIN-BONE ALLEY.

In spite of every effort it was impossible to rally the monkeys and get them to shoulder their wooden





guns again that morning. Sponsie Number 1 stowed himself away under the straw in Blücher's kennel, as on a previous occasion, and Sponsie Number 2 reaching the closed gate, braced himself in one corner with his sad eyes nervously moving up and down, looking as if breathing within his own trembling bosom the patriotic words, "I want to go home!"

Esther carried the young warrior back to the Doctor's, while Sammy prepared to attend to his Dispensary practice. The children dispersed in all directions in great glee, and before noon there was hardly a colored family on the west side of the city that had not heard of and heartily laughed over the Battle of Shin-bonc Alley.

When Sammy returned to the office of his preceptor, he found both Mrs. Millstone and Mrs. Biddlewicker awaiting his arrival. The Doctor had been amusing them with the report of the sham fight as given by Esther when she brought home the invalid monkey.

"We," said Mrs. Millstone, speaking in behalf of her friend Mrs. Biddlewicker, "want you to come to the masked party, prepared to give the





young people a lecture about something they will understand. The first thing to do, you know, will be to amuse them with the monkeys, if they will behave well together; or with one of them, if you think it best to have only one present. Then, just before refreshments, we want to place all the chairs in the double parlors in rows facing the end of the front room, and after seating everybody, have you stand up in front and give them one of your nice lectures on anatomy, physiology, or something. You will do it, won't you, Sammy?"

While Mrs. Millstone was laying out all this programme Sammy looked more uneasy than the Doctor did. The latter had been so many times happily surprised with the boy's efforts, he had come to have just about as much confidence in the ability of his sable pupil as old Mr. Johnson always seemed to entertain. But the young lecturer hesitated and looked not a little anxious when his old friend concluded the programme with the question put in a low and persuasive tone.

Standing up and talking to people with the most of whose faces he was more or less familiar, and in a place, too, where he felt entirely at home, was,





in his estimation, quite a different thing from standing up in a strange and fashionable house before educated children of the first families, whose tastes might not at all accord with his own. And this he frankly said to Mrs. Millstone.

"I know you will please them," said she, "and with a mask on you won't feel bashful. Nobody feels bashful at a masked party," she added.

Doctor Hubbs told Sammy that he had no doubt but that the programme laid down by Mrs. Millstone could be successfully carried out, and he said :

"The lecture will not only be a novelty, but a very instructive feature. We want," said he, "to get in the way of mixing religion, education, and play more inextricably together. They are not chemically incompatible elements, to use a phrase familiar to our profession."

"What could I lecture about there?" asked Sammy, with an expression of face and language more like that of a whining boy than in keeping with the bright lad that he really was.

Both the ladies and the Doctor were surprised at this exhibition of timidity, and were about to





speaking all at once as a sound arose from the doorbell.

Old Mr. Johnson was admitted! Finding that there were ladies in the office with the Doctor he declined to enter there, but proceeded to make known to Sammy what he wanted as the two stood in the hallway with the front door remaining open.

Recognizing the old gentleman's voice, the Doctor stepped to the door and begged him to come in. "You are," he said, "just the one we want to see. Sammy is timid about engaging to lecture before some young people on Wednesday night at Mrs. Biddlewicker's!"

As Mr. Johnson stepped in and was introduced to the two ladies, he inquired if it was altogether a white folks' party. On being informed that it was, he said:

"Well, then, I am not surprised, then, that Sammy hesitates, then," replied the old man, putting a peculiar emphasis each time upon the word then.

"But it is to be a masked party, and all will be of one color," interposed the Doctor, hoping to be





able to gratify his friends, Mrs. Millstone and Mrs. Biddlewicker, in securing the presence of Sammy.

"Ah, sir! that is a different thing, sir! We colored folks, sir, owe you white folks one, sir,



MR. JOHNSON GIVING HIS OPINION.

since your friend Dr. Winkles played off his masked joke on us, sir," added the old gentleman, laughing heartily as he brought the end of his cane firmly down on the carpeted floor, with only a muffled resonance. "Sammy, sir, you are equal





to it, sir. Black boys must not show the white feather, sir !”

The presence and assuring manner of Mr. Johnson completely changed the mental mood of the young lecturer, and the thought shot through his mind as to how much stronger he would feel if his old friend could only accompany him. “Perhaps,” thought he, in his innocent forgetfulness of the prejudice of race, “the ladies may invite him to attend. I will,” he said, addressing the ladies, “do just as Doctor Hubbs and Mr. Johnson say.”

“And I will let you know the result to-morrow,” added Doctor Hubbs ; upon which the ladies arose to depart, and, bidding Mr. Johnson, as well as the Doctor and Sammy, a cordial “good afternoon,” they left without extending the additional invitation which Sammy silently hoped would be given.

“I called, sir, on about the same errand, sir, that the ladies did, sir,” remarked the old man, as Doctor Hubbs returned to his seat. “But, sir, as it is for the same night, sir, I must put my little affair off, I see, sir.”

It seemed that Mr. Johnson had called to ask





Sammy if he would not lecture on Wednesday night on the subject of phrenology. Several young men, headed by young Diggles, had sent a written request of this kind to the old gentleman, who was regarded by the colored people as a kind of business manager of both the dispensary and of the young lecturer. 'It might be said, perhaps, that while they looked upon Sammy as Doctor Hubbs' pupil, they considered him the ward of Mr. Johnson.

When the latter concluded his explanation, Doctor Hubbs replied :

"Scientists are bringing their batteries of criticism to bear pretty actively on phrenology just now ; but thus far they are rather answering claims set up in its favor in their own imaginations, than those which careful phrenologists have made. Many of them do not seem to have studied the science they are attacking, and are advancing upon a supposed enemy without knowing his position. They, indeed, in many instances, mistake some 'Quaker Guns,' mounted here and there in their line of march by green phrenological recruits, for the true weapons of defence relied upon by





such men as Doctor J. R. Buchanan, the veteran Fowlers, Professor Sizer, and many others who always know what they are talking about, if they do not on all questions agree. Many careless words have been uttered by amateur phrenolo-

gists, but the older heads cannot be easily vanquished."



THE CHILD.

"It strikes me," said Sammy, once more exhibiting his true character, which seemed to have left him when the two ladies were present, "that if Mons. Papillon and Doctor Carpenter are correct, that phrenology must be rooted in truth which can be

demonstrated. For instance," he said, "Mons. Papillon proves by physiological reasoning that there must be a psychic faculty or soul, which has charge of the bodily machinery. Doctor Carpenter, who is considered reliable authority in all that





relates to physiology, says that every time we see, hear, or learn anything which we can afterwards recall, some new nerve-fibres grow in the brain, and new nerve-tracks are formed. These two facts put together must mean that the psychic faculty or soul records in the brain everything that we learn. The former would naturally put those memoranda referring to similar things near together, just as in our filing letters away in our letter-boxes, we put letters from Chicago in the pigeon-hole next to the overflowing Illinois box, and letters from Boston in the pigeon-hole next to the crowded Massachusetts box."



THE MAN.

Just here Sammy paused, looking as if he had other ideas to advance, but needed time to put them in shape for utterance.

Both Doctor Hubbs and old Mr. Johnson cast





glances of proud satisfaction at each other while the little lecturer was proceeding with his argument; and when Sammy came to a protracted pause, looking a little confused, the Doctor exclaimed :

“ We catch your idea, Sammy. You think that the phrenologists, in grouping certain faculties together, such as those called the perceptive faculties, others known as the reasoning faculties, etc., are sustained in their method by what Monsieur Papillon tells us, and by what would naturally occur where an intelligence was guiding the formations of records in the brain. It is true that in our business affairs we classify our memoranda; that in writing or speaking effectively we classify our subjects; and it is but fair to suppose that the intelligence within us, which leads us to adopt such systems and methods, is no less methodical in its own work. Hence all that occurs belonging to the region of our perceptive faculties would lay new nerve-tracks there; all that appeals to our reasoning faculties would lay new nerve-tracks among them; all that exalts our moral and religious faculties would lay new nerve-tracks where





these faculties reside, and so on. And as both observation and experiment have demonstrated the location of these groups, we know where to find them; and if new nerve-tracks are formed every time we exercise any of the organs of these groups, it is evident enough that they must change in size, and that the apparently unyielding skull, undergoing, as it is, constant changes by the decomposition of old material and the rebuilding with new, reshapes itself to the changing form of the mass of peculiar matter within it. In the growing child who has a thirst for knowledge, this change is observable from year to year; and in the adult, who is progressive morally and intellectually, it is noticeable in those whom we do not daily see. Your idea, Sammy, is a capital one," said the Doctor, looking first to the boy and then to the old gentleman, who nodded an enthusiastic assent, and added:

"Doctor Hubbs, sir, we must have a lecture, sir, from Doctor Samuel Tubbs, on phrenology, sir. He is equal to the subject, sir. I'll wait, sir, until the party is over, sir;" saying this the old man gave some encouraging words to Sammy to go to





the party and to do credit to himself. "Speak on phrenology, my boy, unless you think of some other theme which you prefer, my boy, and then you can repeat the lecture at our place, my boy. You can do it, my son, you can do it, sir!"

Bowing to the Doctor, and shaking hands warmly with Sammy, the old gentleman left, thinking so earnestly about Sammy's smartness as he walked homeward, that his lips moved and his hands added here and there a kindly gesture, greatly to the amusement of those who passed him on the sidewalk. The latter did not know what new nerve-tracks were being laid in the region of the organ of benevolence in the old man's brain, as he thought of the field of usefulness which awaited Sammy among his own people, and of the promising capacity of the young lecturer to do the great work which beckoned him onward.

After old Mr. Johnson departed, the Doctor and Sammy took into earnest consideration the programme Mrs. Millstone had proposed for the party, and it was decided that Mrs. Biddlewicker should be informed that Sammy would do as her friend Mrs. Millstone had requested. It was be-





lieved, however, and the two ladies were to be told that probably only one of the monkeys would accompany Sammy. Further efforts would be made to teach them to take certain parts together, but if the efforts failed, only one alternative remained, and that was to take the most proficient actor, giving the duller one the slight. I will, therefore, now close my portfolio until Wednesday, for our young lecturer will have his hands full in making preparations for the coming masked party, at which he is expected to provide both fun and sober entertainment, by Mrs. Millstone and her friend Mrs. Biddlewicker, both of whom will keep this secret entirely to themselves. Even Miss Minnie knows nothing of the arrangement with Sammy.





CHAPTER VI.

THE MORNING OF THE PARTY—SHAM-FIGHT AND FALL OF SPONSIE NUMBER 2—PHRENOLOGY, PHYSIOGNOMY, AND SARCOGNOMY — THESE LARGE WORDS EXPLAINED—THE AMPUTATION OF THE FOOT OF SPONSIE NUMBER 2—ALL READY FOR THE EVENING CARNIVAL.



EDNESDAY morning! It is snowing a little. The curbstones, tops of fences, window-caps and sills, and brown branches of the leafless trees, look as if they had not wholly cast off their night clothes! Their spotless garments will dissolve from view when genial "old Sol" reaches forth his golden wand! Just now he is peeping through between two black clouds in the





eastern sky, and giving us promise of a fair day. In at least two houses in the great city there is the bustle of activity at the hour of eight o'clock. The Biddlewickers are making lavish preparations for to-night's entertainment, and at the Doctor's the two monkeys are being put through all sorts of training. Sammy has succeeded in effecting the most perfect and cordial understanding between Sponsie Number 1 and his former prisoner. Like the Confederate soldier and the survivor of Libby prison, they have struck hands across "the bloody chasm," and have come to regard all animosities as the products of the basilar (lower) region of the brain, and they want to lay no new nerve-tracks there. All heads, whether human or animal, seem generally to be born with enough of them.

The two homeguards have become so familiar with a gun and with burnt powder without balls, that they will not only carry small weapons that can be fired off, but will stand up bravely and pull the trigger which sends a flash of fire and a curling fold of smoke from out the ends of real metal barrels.



Early this morning Sammy had the two warriors in his room giving them what a theatrical manager would call a rehearsal. After marching and counter-marching the monkeys about in single file for some time to the rub-a-dub-dub of a small



THE REHEARSAL.

toy-drum hanging to the neck of Sponsie Number 1, his companion-in-arms meanwhile carrying a musket, their chivalrous commander placed them in position for a sham-fight. Each of the braves was provided with a perfect gun of miniature size loaded with powder and wadding, primed and capped for mortal combat! At a

given signal from Sammy, both fired, and Sponsie Number 2 fell as if terribly wounded. Of course he was not. It was all play, but exceedingly well done. It is worthy of note that Sponsie Number 1 insisted upon occupying the same superior position in re-





lation to his comrade that he had heretofore sustained when the latter was under the floor. Sammy started out by trying to have Sponsie Number 1 fall in the combat, for he thought that as he was a trifle smarter, he might go through the part a little better, but this would not work at all. The original Sponsie was willing to kill, but he was not willing to be killed or even to be wounded. It became necessary, therefore, to make Sponsie Number 2 the victim, as usual, and Sponsie Number 1 would strut about after the encounter as if the affair was an actual combat, and he a great hero.

Just now Doctor Hubbs is engaged in his office-room in showing Sammy a phrenological map of the brain. I will give space to a small copy of it by and by, so that all my young readers can see it. The one the preceptor and pupil are bending over, is copied and enlarged from Professor Buchanan's "Neurological System of Anthropology."

"And what is Neurological System of Anthropology?" I imagine that some of my readers may inquire, while nearly dislocating their jaws in giving utterance to these difficult words.





Well, to be brief, it is the whole nervous system of the human body. If you will turn to Webster's dictionary you will find Neurology defined as a description of the nerves of animal bodies, or the doctrine of the nerves. The same authority, if you consult it, will tell you that Anthropology is the science of man, considered physically, intellectually, and morally, or in his entire nature.

The work referred to, written by Professor J. R. Buchanan, was published in 1854, and is now unfortunately out of print. Ten dollars was recently paid for a copy, which doubtless, when published, could have easily been bought for less than one-third of that amount. It is to be hoped that its author, who is at present filling a professorship in the Boston University, and occupying the chair of Anthropology in the Eclectic College of New York, will find time to give to the world another volume, embracing his former and later discoveries in Cerebral Physiology, by which I mean the physiology of the brain. In all that Professor Buchanan presents in regard to the Physiology of the brain, Pathognomy and Sarcognomy, he fortifies his position by facts and arguments quite as convinc-





ing as those given by other investigators who take less advanced ground. If this work were intended solely for adults I would reproduce some of them in these pages; but I fear my young readers would hardly have the patience to peruse them, and I therefore feel constrained to content myself with calling attention to a brief outline of his discoveries, trusting that this will awaken an interest here and there in an inquiring mind that will be able to take up and carry forward the investigations which Professor Buchanan has commenced.

"But what do you mean by Pathognomy and Sarcognomy?" perhaps some bright, uplifted faces are inquiring, while I am rattling along as if I had not dropped some big words as formidable as chestnut-burrs, which ought to be picked open. Well, be patient, and I will fix it so that you shall in good time find out.

The science of Phrenology, most of my readers need hardly to be told, refers to the reading of the human character by the form and quality of the brain. The former is determined by the size and external conformation of the skull, and the latter by the temperament of the individual. Every fac-





ulty and passion is claimed to have a special organ in the brain, which is developed or diminished proportionate to its exercise or neglect. Phrenologists are not entirely in accord as to the location of a few of the organs ; but a majority of them exert such a controlling influence in the manifestations of the mind, that those giving attention to the subject seldom fail to agree as to the proper place in the skull to assign their residence. Time will correct all disagreements, and investigation will eventually place the science on a foundation which will defy the attacks of all assailants.

We will look now at a picture of the human head, and see where the groups of organs which exercise so much influence over all our actions are located. In presenting in this volume a picture containing so much, some of the names can hardly be read without the aid of a magnifying-glass. If you have one it will repay you to use it and examine the chart closely. But the larger letters outside of the line of the head will give you an idea of the regions in which many of the groups of organs are found.

In the picture it will be seen that the face is





Buchanan, here reaches out considerably from Phrenology into Physiognomy.

Again I am touched on the elbow by some little inquirer who wants to know the meaning of Physiognomy. I ought to say, "Go to your dictionary," but as this will for the moment take your attention from these pages, I will give it to you just as Webster defines the word.

"Physiognomy: The art or science of discerning the character of the mind from the features of the face; or the art of discovering the predominant temper or other characteristic qualities of the mind by the form of the body, but especially by the external signs of the countenance or the combination of the features."

For instance, if either Professor Buchanan or Professor Redfield were to meet you, he would tell you just what sort of a boy or girl you are by the appearance of your eye, form of your nose, the size of your ears, shape of your chin, the width of your jaw, the conformation of your lips, and the prominences and depressions in your whole face. And he would tell you correctly too, so that your mother's face would be lighted up with pride as he





spoke of the good traits she knew you possessed, and droop in sadness as he revealed the bad qualities which she hoped nobody but herself would ever discover.

Investigations in Physiology sustain the claims of Physiognomists, by which latter term I mean those who understand or teach Physiognomy. If M. Duchenne were present he could with an electrical instrument touch certain muscles of your face and make you look cross; touch others and make you look as if you were greatly pleased; again touch certain other muscles and cause your expression to be one of happy surprise; agitate others and make you appear as if greatly disappointed, and so on, causing all sorts of facial expressions.

Well, now, every thought which passes through your brain stirs in some way a facial muscle. This agitation of a muscle diverts to it a greater flow of blood; this flow of blood to the muscle causes it to grow. M. Duchenne would give those muscles mechanical agitation with the electrical stimulus, and if continued long enough would somewhat magnify the Physiognomical indications of your character, and thus in a measure mislead





the Physiognomist. But inasmuch as your facial muscles are seldom stirred by mechanical causes, but are thrilled by nervous forces sent from your brain every day of your life, the skilled Physiognomist would have no difficulty in reading your character in your facial lines, because the thrilling of these nerves, and the agitation of the muscles under their control, enlarges the latter so as to tell tales of those organs in the brain, which have produced the various facial expressions.

It does not, indeed, require a practised Physiognomist to read the characters of some people in their faces ; and in using the term practised Physiognomist, I mean those who have devoted much time to the application of the science. All observing people are more or less practical Physiognomists. Everybody meeting another body forms some kind of an estimate of the stranger's character by the face he carries about with him ; does it involuntarily—not always correctly. Study of the science is necessary to make one exact in reading what people truly are by their features and facial muscles.

But I must tell you another surprising fact : If





Professor J. R. Buchanan should catch you in swimming, without bathing-dresses on, he would read your characters in your bodies, even if you should hide your faces and heads in the sands of the beach. He proves in his Anthropology before alluded to, that the nerve-fibres reaching out to various parts of the body so influence its development, that there is a kind of Physiognomy which applies to the body as well as to the face. He calls this science Sarcognomy.

You must understand that anatomists have found that every nerve-fibre going out from the brain extends without branching to its appropriate place of termination. When it is considered that there are hundreds of millions of them thus extending from the great centre—the Capitol of the Nervous System, as I nearly twenty years ago named the brain—to every part of the body, it must be appreciated that every square inch of the human system is under the direct control of the brain. Every thought and every emotion thrills and vibrates its appropriate nerve, and this agitation extends to the end of the great toe if the nerve terminates there, just as much as it would agitate the





much reduced in size from the original, to give it room in these pages, but it can be read with care, and will repay patient study. Put your magnifying-glasses over it if necessary to make out all the names.

The author of this system gives us in his work evidence of the sympathetic connection between the intellectual faculties located in the front part of the brain and the region occupied by the breast-bone, or sternum. Also the reasons for believing that the higher affectional organs influence the development of the chest on either side of the breast-bone. Here, he says, are the places where we are thrilled by emotions of hope, love, benevolence, patriotism, and reverence, giving prominence without depth to the upper part of the chest, while the back part of the same region is made deeper and broader by the exercise of those organs whose location is marked on the back over the region of the lungs in the right-hand figure. In other words, the gentler thoughts and emotions of the front brain give prominence without depth to the chest, while the exercise of the more energetic faculties of the back brain impart both depth and breadth to the chest.





“The correspondence between the body and the brain is such,” says Professor Buchanan, “that we may say that the upper portion of the brain and the upper portion of the body correspond, and the lower portion of the brain below a line drawn just above the orifices of the ear, from the face to the back-head, corresponds to the lower half of the person. The organs of the front half of the brain correspond with the front surface of the body, and the back half coincides with the arms and back surface. The organs of the neck coincide with the lower limbs, and the corresponding region of the arms is found on the middle of the upper back-head.” He traces the relation between the organs of disease, fear, and sensibility, to the abdominal region under the margin of the ribs. In speaking of the influence of this portion of the body upon the health, he says :

“The fact which points to this location is the existence therein of a great centre for morbid influences. The blood, in passing through every portion of the system, acquires a peculiar character from the influence of each part. In the lungs, for example, the blood attains its highest degree of





vitalization. As every secreting organ separates peculiar elements, and all other parts of the body are continually taking from the blood their appropriate nourishment, and giving back to it their waste material, there are greater varieties in the quality of the blood in different parts of the body than chemistry has yet described. The blood of what are called the portal vessels, located in the region we are speaking of, collects from the intestines to go to the liver, and is more impure than that of any other portion of the body. It possesses qualities which, were they scattered throughout the blood tubes of the body, would place the latter in a general state of disease, if indeed they did not produce death. This bad blood of the portal vessels undergoes double purification, first by the liver, and then by the lungs, before it is fit to re-enter the general circulation."

"The accumulation of the blood in the region under consideration is one of the most common features of disease. In proportion as the disease is more general, and less strictly local, it is characterized by a congestion of the portal vessels. That is by their being unduly pressed full of the impure





blood which in health passes readily through them. Fear and every other mental condition which causes this congestion tends to enfeeble the health and invite the attack of disease, while active exercise and everything which causes the blood to flow towards the surface of the body and into the limbs in equal quantities, helps to maintain health." Professor Buchanan believes that the organs marked Sensibility, Fear, and Disease in his outlines of Phrenology exert a direct influence upon the activity of the portal vessels, and he has made many interesting experiments which tend to confirm this belief.

The same writer locates the selfish and evil propensities below the waist on the lower part of the back. Irritability lies at the margin of the ribs nearly on a level with the elbows, and is marked "Irri." Right above it is Acquisitiveness, or the desire for gain, marked "Acq." The combative and destructive region lies along the back from and including "Selfish" down to and including "Hate," and not along the outer surface of the hips as might possibly be implied from the fact of the names being printed there. The space be-





tween "acq" and "vitality" on either side may be said to define the combative and destructive regions. It will also be observed that Combative-ness has its nerve-lines extending along the back of the fore-arm and Adhesiveness its lines along the inside of the forearm. Vitality is located where the thigh joins the body. Nutrition is just back of the outside of the thigh. "Amat" stands for Amativeness, and that is situated at the point where the spinal bones unite with those of the pelvis.

Professor Buchanan refers to all those located along the lower part of the back as the baser organs, and speaks of the feelings of unpleasantness and disgust which are associated with the lower parts of the body. While admitting the existence of such a sentiment I must enter my protest against it, and for reasons that will find expression before the close of this series. Suffice it to say in this place that the sentiment is, in the opinion of many intelligent and Christian people, due simply to centuries of false education.

Below the knees the legs are not mapped off to any great extent, but in the original picture look



as bare as some of our unexplored territories do in our school atlases. The author, however, remarks that the Sarcognomy of the legs corresponds mainly with that of the arms. Whether future Sarcognomists will be able to make new discoveries in these regions of the body, time will determine.



ANOTHER LOOK AT THE HEAD.

We will return again to the upper part of one of the figures, where we have left some hard names which should be defined and explained. For this purpose we will make a large copy of the head of the figure, and place it where we can refer to it more conveniently. The word Thoracic always refers to the region of the chest. Hence the front upper part of the head is so marked, because the action of the brain in this locality exercises an influence over the upper front portions of the chest. Brachial refers to the



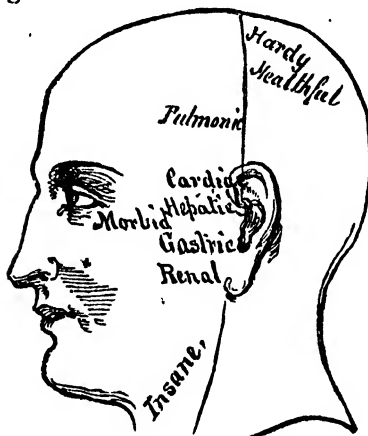


arms and the back upper part of the head is thus designated because the brain in this region exerts an influence over the development of the arms and shoulders. For instance, a well developed back-head goes with well-developed shoulders and shoulder-blades, indicating hardihood or toughness, firmness, health, and energy ; and also well developed arms indicate combativeness, ambition, and, unless largely controlled by a well developed front brain, coarseness. The word Dorsal refers to the back, and is placed over those regions of the brain which influence the development of the back of the body in what is called the Dorsal region. This extends from the neck to about where the elbows touch when thrown downward and backward. Crural is a term applied to what belongs to the legs ; therefore Professor Buchanan marks that portion of the brain which has so much to do with muscular motion, Crural¹.

Abdominal is placed over those organs which influence that portion of the front of the body below the waist. And here we reach some very interesting facts in Cerebral Physiology as pointed out by Professor Buchanan. I have already



alluded to some of them in speaking of the influence of certain organs of the brain over the portal vessels. To make them plain I will give a diagram of the human head mapped off somewhat more extensively than the one in the picture already given.



A SUGGESTIVE CHART.

Look at this one carefully, as it will be referred to again on page 203, where the pair of nerves called the Pneumogastric will be described. All who are interested in the facts relating to the peculiar influence of the mind over the body, will observe much that is suggestive herein.

The region marked Pulmonic is claimed to have special control over the lungs; the organs in the region marked Cardiac control the heart's action; Hepatic designates the locality of those organs





which presides over the liver ; Gastric, those which give attention to the stomach ; and Renal is placed over the region which is claimed to have control of the kidneys. Morbid, in the region of the cheek-bone, is the place to look for the signs of an infirm constitution. Breadth of face between the cheek-bones, unless there is a large development of the head in the Brachial region, indicates a constitution easily affected by disease ; in other words, one that is susceptible to disease. If the face is narrow between the cheek-bones and the head high and broad in the Brachial region, this formation indicates a constitution which possesses great power to resist disease. Great breadth of neck below the jaws at the point marked Insane, indicates a tendency to insanity, if the brain is not sufficiently developed in the Brachial region to overcome that tendency. Depression in the latter region and great breadth in the former marks a constitution which is very liable, on the approach of trouble or illness, to lose its mental balance. All of these facts which Professor Buchanan brings evidence to sustain are of special value to the physician, and may be profitably studied by every-





body ; for there are not many who know the peculiarities of their own constitution.

In magnetizing the head, the passes of agreeable hands from the region marked Morbid on the sides of the face, directly backward and upward to a point marked Healthful, for some moments, and the gentle movements of the palms of the hands up and down for a few moments more upon the Brachial region is very energizing. Rapid passes then made downward with the ends of the fingers over the Dorsal and Crural regions as marked upon the head, help very much the other passes in relieving headache. A little book entitled "Babbitt's Health Guide," gives some very valuable suggestions in regard to magnetic manipulations, and the system of the author is based, in a measure, upon the science of Sarcognomy as taught by Professor Buchanan.

It was my design at the outset to call the attention of the reader to all the points marked in the picture entitled "Outlines of Sarcognomy," but I fear I am wearying your patience. We have, however, been simply going over the ground that Sammy and the Doctor have been investigating





even more thoroughly than we have, every moment of their leisure to-day. The young lecturer has been as busy in making ready for the parts he is to take at the masked party this evening as if he had been preparing for some grand occasion at the



THE SURGICAL FARCE.

Academy of Music. He has just been teaching Sponsie Number 2 to be the subject of a surgical operation. Immediately after the latter is shot by Sponsie Number 1, he falls, and, drawing up one of his own legs convulsively into his pantaloons, he





pushes down through a hole in his pocket, contracted by a rubber ring, a black sheep's leg with much the same convulsive effort as if the same wounded leg had again descended that was drawn up but a moment before. The borrowed leg has been made to look as if it had been shot through at the ankle-joint. If you had looked into Sammy's room about an hour ago, you would have seen him bending over the terribly wounded monkey in the act of amputating the foot at the ankle-joint.

Our young lecturer has provided himself with a plenty of sheep's legs, obtained from the butcher, with which to rehearse and then to carry out the farce at the party. This last operation has been a perfect success in every respect, Sponsie Number 2 having performed his part bravely. It really looked as if Sammy was taking off one of the monkey's feet, so dexterously did the little soldier draw up his own leg and put out the borrowed one. It is to be hoped that some of the nervous and excessively sensitive ones may not be so deceived as to turn deathly white and go off in a swoon when this trick is enacted. If any of them





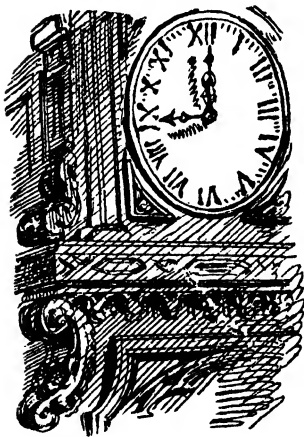
are broad in the face between the regions marked Sensibility on the chart, they had better leave the room. We will see. Good-by till nine o'clock.





CHAPTER VII.

NINE O'CLOCK—A CARRIAGE CALLS FOR SAMMY
—THE REMARKS OF HIS CLASS—HIS ARRIVAL
AT THE MASKED PARTY—WHY THE MASKED
YOUNG PEOPLE COULD NOT CLEARLY HEAR
THE MUSIC—SOMETHING ABOUT EARS AND
EYES—LIVELY TIMES AND LOTS OF SPORT.



NE-E, two-o-o, three-e-e, four-r-r, five-ve, six-z-z, seven-n-n, eight-t, nine-n-ne, measur-edly rolls out in atmos-pheric waves from the tall tower of the church on Madison Square. Soon our little lecturer will return from his class in Twenty-seventh Street. One important matter has escaped his attention. He has made no arrangements for the transportation of his zoölogical show from the





house of his preceptor to the mansion of the Bidlewickers on Madison Avenue. If he should start out in mask with his disorderly privates, thinking to reach the scene of his evening's adventures by stage or horse-car, he might find himself and his grotesque companions in the "lock-up," where Sponsie Number 1 has already had some personal experience on at least two former occasions. Or, if such an odd-looking group should attempt to go up the avenue on foot, it would frighten timid people into dodging under front steps and seeking refuge in strange basements.

But while I am musing in this way, a close carriage rolls up to the door and both Sammy and his preceptor jump out. Ah! the Doctor did not forget this indispensable provision. At precisely nine o'clock, the same carriage drew up with the stirring crack of the driver's whip, in front of the Johnson Dispensary, so that at the moment the young lecturer concluded his exercises, he found his thoughtful friend awaiting his appearance. As the throng of colored people passed out of Sammy's house, there was not a little curiosity manifested by nearly all of them to know whose





carriage that was and why it was standing there. Their perplexity was dispelled when they heard the Doctor throw open the carriage door and call to the young lecturer as he emerged from the house somewhat behind the rest.

This little incident drew forth many flattering comments from those who stopped to see what was going on; some of them attributing it to the fact that Sammy was rapidly rising in the world, and giving him the entire credit for his remarkable progress; while others bestowed their eulogies upon the Doctor, to whom they seemed to think Sammy was wholly indebted for the enviable position which he had so speedily attained. Some expressed themselves as wishing they were as smart as Sammy, and others, young Diggles among them, who, regarding themselves naturally just as bright, wished they could only have Sammy's chance.

Our young lecturer, on reaching his room, soon stowed away the external indications of his sarcogony in a captain's uniform; and by the help of Bridget the monkeys were speedily dressed and masked, for Sammy had provided some odd-





looking paper faces to conceal their sad physiognomies. I will give you a picture as they all looked descending the steps to take the carriage. The bundle in Sammy's right hand is the costume he will put on when he takes the character of a vil-



STARTING FOR THE PARTY.

lage doctor. Reaching the Biddlewicker's, Minnie, who is standing in the parlor door, as yet unmasked, extending her hospitable hand to some new-comers, is absolutely startled with fright as well as surprise as Sammy and his party are ad-





mitted by the servant, and go bounding rather than walking or running upstairs to the dressing-room, whither they had been directed by the polite usher.

"What odd-looking folks!" she exclaimed in an undertone to her mother. "Did you see them?" (Minnie, of course, does not know that two of the group are real live monkeys. Nor did Sammy realize that in springing upstairs with his mischievous companions he involuntarily assumed their gait.)

"They were strange-looking people," replied Mrs. Biddlewicker, pinching her lips in her efforts to restrain her merriment. Then suddenly turning from her daughter to Mrs. Millstone, who was sitting not far off, she whispered:

"They've come! They've come!"

By this time, now about ten o'clock, the parlors had become nearly filled with young people in every imaginable costume, and disguised with masks of every conceivable pattern; many of them very comical. But possibly through fear of detection by the sounds of their voices if they should speak, or because they were too timid to say





anything, the place had been nearly as quiet as a Quaker-meeting, excepting now and then a rustling of dresses caused by the movement of the feet, or the bowing of heads, as additional ones, singly or in couples, entered the room, or again as some timid fingers would touch the keys of the piano.

Mrs. Biddlewicker now thought it quite time that everybody was on the move, and to give more animation to the strange-looking people sitting around in such silence, she put a professional player at the piano, and by his side a harpist, violinist, and an expert on the cornet. Had the



THE MUSICIANS.

young people been unmasked they could hardly have resisted the expected effect. But their ears were nearly or quite covered by the paper-masks, which prevented the stirring stimulus from reaching with full force the three thousand nerve filaments with





which each auditory nerve is provided for gathering up sounds and carrying them to the brain. Even if orifices had been made through the masks opposite the open places in the ears, the hearing would not have been perfect, for all the little curves and ridges in the outer ear assist us in hearing. They present surfaces in nearly every direction for gathering up sounds and conveying them to the filaments of the auditory nerve. The musical instruments did their part, and set in motion by the vibrations of strings and the breath-currents through the cornet, such waves of air as could not have failed to reach the harps which the nerves have formed by their numerous fibres in the inner cavity of the ear, if the peculiar instruments which Nature has provided for gathering up those atmospheric waves had not in this instance been covered up. The fingers of the pianist bounded over the key-board ; the harpist moved his head as well as his hands as his nimble fingers leaped from string to string ; the right elbow of the violinist jumped rapidly about under the nerve impulses sent from his brain as his bow danced merrily forward and backward across





his violin; the cheeks of the cornet-player swelled out like the sides of a big red apple, as he filled his instrument with air waves which passed through it with force enough to reach every unobstructed ear in the room.

In spite of all this, each one sat looking and bowing at the other without leaving a chair or uttering a clearly audible word, till Sammy and the two Sponsies entered. This event was like uncorking a bottle of lightning, if it were possible to bottle the subtle fluid and set it free by cutting the strings which held down the stopple. The Sponsies were not timid, nor were they fearful of being detected. They were in for fun wherever it could be found, or for mischief, if more innocent amusement was not attainable. They bounded through the parlors as if every one of the three thousand nerve filaments of their ears terminated in their feet and toes. Every atmospheric wave from the musical instruments filled their ears and moved every nerve and muscle of their agile bodies.

First they went leap-frog across the floor through the front to the back parlor and back



again ; a trick that Sammy had taught them at the very last moment. This brought every one



THE DEBUT OF SAMMY AND THE TWO SPONSIES.

to his and her feet, and set in motion from every individual mouth waves of air which reached the ear in the form of what we call laughter. In





the midst of the latter Sammy issued at the height of his voice his military commands. He could hardly make himself heard above the uproar, nor would it have been possible for him to have done so, had Nature been less lavish in supplying the ear with nerve filaments with which to gather up sounds. But, as Professor Raymond has said, "every shadow of tone has its corresponding note in the ear, and becomes in our mind a sound." Hence in spite of the music of the four instruments and the hilarity of nearly a hundred young people who were convulsed with laughter, or, in scientific terms, in the midst of the greatest mixture of air waves falling upon the ear from all possible directions, the words of command were heard, and the monkeys gave up their disorderly frisking for more orderly exercise. As the two Sponsies were going through their military drill, the greatest curiosity was manifested by all present to know what they really were.

"Are they real monkeys, do you suppose?" was overheard from the lips of one.

"I think they are small boys disguised as monkeys," is the reply of another.





“That one that has charge of them is a bright young fellow,” said a young lady of about sixteen disguised in the costume of a peasant-girl.

On reaching the farce of the sham fight many are frightened by the sharp successive cracks of the miniature muskets, and when they see that one has fallen, several voices cry out in confusion :

“It’s a shame !” “Oh ! it’s a shame !” “One of these little creatures is shot, is shot sure !” “They are monkeys—see their feet !” “He is shot in his paw !” “Oh, it is too bad, it is too bad ;” and many other such exclamations fall excitedly from the lips of those who gather around the prostrate soldier, who is quivering as if in pain, and extending his wounded borrowed leg.

Sammy had disappeared meanwhile for a moment to change his mask and costume. But before the company had finished their ejaculations of sympathy and dissatisfaction, our young lecturer reappeared, dressed as a village physician, with gold spectacles on his nose and a case of surgical instruments in his hand.

A table was quickly brought in by a servant





who had been directed by Mrs. Millstone, and the wounded soldier was stretched upon it.

"Why, he's going to cut his leg off!" "Oh! don't do that!" "Oh, that is awful!" "I wish I hadn't come!" "Oh, dear! oh dear!"—These and all sorts of denunciatory and despairing exclamations issued with deep-drawn sighs from the group of bystanders, and some of them were on the point of seizing Sammy's hands as he proceeded coolly to amputate the foot.

I cannot tell you the consternation which was depicted in the pathognomy of each one who witnessed this seemingly cruel operation. Professor Buchanan tells us that every emotion of the mind is accompanied with a certain posture of the body peculiar to that emotion. If one is suffering from grief, the head and other portions of the body assume an attitude in perfect keeping with this feeling. There is an attitude of pleasure; of horror; of disgust; of defiance; of affection, etc., and the science which treats of these emotions of the mind with their corresponding postures he has named pathognomy, although the same word is employed by the medical profession for some other purposes.





As a matter of course I cannot tell you what expressions the faces of the young people really bore, for these were masked. Their physiognomical indications were hidden from view, but their pathognomical signs depicted sympathy, fear, horror, and denunciation. A few gave the pathognomic signs of pleasure and satisfaction. They instinctively saw through the whole of it, for their perceptive organs were prominent, and in whispers they pronounced the verdict that nothing was ever more cleverly done.

After the removal of the foot, Sponsie Number 2 drew back the sheep's leg so that it was held by the rubber-ring in the open end of his pocket. Then seizing a crutch which had been provided for him, he started off upon it as if the operation had been performed ten years rather than ten seconds before.

Here the drama was defective ; it betrayed the farcical nature of the tragedy to the wiser ones, who at once broke into uproarious laughter.

" But he certainly cut the foot off ! " said one ;
" I was right close by him and saw him do it,"
urged another ; " I saw the blood run and the leg



quiver as the knife was used!" exclaimed the third; "I saw the foot after it was removed," confidently affirmed the fourth, with eyes almost protruding with surprise through two large holes



THOSE WHO KNEW THE FOOT WAS CUT OFF!

in the mask in front of the visual organs, as the eyes are called.

But the eye will be deceived sometimes, notwithstanding the fact that the large nerve passing out from the back of it to communicate to the brain what is passing before it is provided with not less





than one hundred thousand nerve fibres with which to catch glimpses of surrounding objects. The masks may have furnished some obstructions, but even with good, unfettered eyes a person may sometimes be deceived.

Nevertheless, be it said, the eye is a marvel of perfection. Let us stop here for one moment to examine it; the white of your eye is called the sclerotic. It envelops all of the organ, excepting a small place in front and an aperture large enough in the back for the optic nerve to pass through. The circular spot in front, which in some persons is blue, in others gray, and in many all shades of color from brown to black, is called the iris, and this is protected externally by a tough, transparent membrane, clear as glass, called the cornea. In the centre of the iris is the pupil, which is under the control of the latter. In other words, the iris with its little fibres can open or close the pupil just as you open and close your mouth. If the room be very light the iris will contract the pupil to prevent the admission of too much light into the inner portion of the eye. When you first enter a light room from a dark apartment you are dazzled by



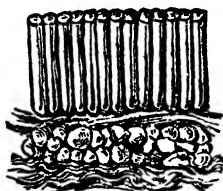


the excessive light till the iris has time to adjust this little circular window by making it smaller. If you go from an illuminated room to one which has but little light you can see nothing till the iris enlarges the window, or pupil, as it is called. The image of an object passes through first the cornea, then the aqueous lens (a lens of water) immediately behind it, then through the crystalline lens, which is composed of a clear, tough substance, and finally through the vitreous body, which is a jelly-like, transparent fluid, filling the inside of the eye; here at last the image falls upon the nerves of the eye. Between this vitreous body and a dark lining of the sclerotic, called the choroid, the optic nerve expands, presenting a surface called the retina. Upon this surface, as has been remarked, the image finally falls, and is by it communicated through the optic nerve to the seat of intelligence—the brain. Microscopists say that the inner lining of the retina is composed of rods set closely together like so many stakes driven into its bed one against the other, and these very likely are the terminal points of the hundred thousand distinct fibres with which the optic nerve is said to





be provided for the purpose of gathering up the images of various objects, just as the three thousand filaments of the auditory nerve are placed in the inner part of the ear to gather up all varieties of sounds. Very wonderful! you will all exclaim.



MICROSCOPIC VIEW
OF THE RODS.

Yes, and what is most wonderful of all, is just how, after all, we become conscious of these sights and sounds after they have been duly communicated through these peculiar nerves to the brain.

But I will not dwell too long upon this incidental and not altogether relevant matter. Before leaving it, however, allow me to caution you against spoiling your eyes by carelessly rubbing them. You know when you look at the sun, or when your eyes have either a sensation of itching or dullness, you are apt to carelessly poke the finger or knuckle into your eye, and rub it. Now this practice flattens the cornea, or face of the eye, and when, after years of such habit, the cornea be-





comes considerably flattened, you will have to wear what are called convex spectacles. Nearly every man and woman before reaching the age of fifty years, and many before forty, find themselves compelled to adopt glasses. They say that age has impaired their sight. But I will tell you something they do not know: age does not do it; at least it does not in many cases. All, or nearly all of them, during the forty or fifty years they have lived, have been in the habit of carelessly rubbing their eyes when those organs have felt uncomfortable from any cause; this mechanical pressure on the face of the eye has gradually lessened its fullness, and they have been simply compelled to adopt glasses of sufficient convexity to make up for this loss of fullness. John Quincy Adams knew better than to injure his eyes by careless manipulation, and the result was that he never had to wear glasses, notwithstanding the fact that he lived to the good age of eighty-one years. When your eyes are tired or feel badly from any cause, do as this great man did: carefully make passes with the thumb and finger from the outer edges of the eyes towards the bridge of the





nose. This practice tends to promote fullness of the cornea.

We will return to the lively scenes which are being enacted at the parlors of Mrs. Biddlewicker.



SPONSIE NUMBER 2 AND HIS
PARTNER.

All the young people would carelessly rub their puzzled eyes, if their masks would only allow them to do so, to find out if possible whether or not Sponsie Number 2 has really lost a foot. He is dancing in a quadrille with a little miss of about twelve years ; pretty or not, being masked, it is difficult to state. Sarcognomy does not help

us out here, because the younger as well as the older ones use a great many things to give fullness of figure and perfection of form to the vision when these proportions do not actually exist. Here, too, the hundred thousand nerve-fibres of the optic





nerve fail to detect the deception. The little girl is completely masked, for her phrenology is thoroughly disguised by her head-dress ; her physiognomy by her mask, and her sarcognomy by any quantity of silk and velvet.

Nor can she tell with certainty whether she is dancing with a small boy or a monkey, or whether or not said small boy or monkey has lost a part of one of his limbs, for he sticks to his crutch as if he could not go through the steps without it. Each one in the set keeps his and her eyes on the little fellow, biting their lips when they



SPONSIE NUMBER 1 AND HIS PARTNER.

suppose the small boy is doing some improper thing, and laughing heartily when he performs some trick which leads them to think that he must certainly belong to the monkey family.

Sponsie Number 1 has for a partner a fat lady



who would contest the balance with a two-hundred-pound weight. He seems to think, however, that those pounds count something towards weight of character, for he struts about as if he were a



THE PEASANT GIRL.

French dancing-master leading his huge pupil through the intricate mazes of the dance. Perhaps he is priding himself upon his military rather than his civic achievements, for since he has acquired the bravery to shoot off a real gun, he has exhibited a great deal of importance. Especially has this feeling been manifested

since he has shot his man. If he be priding himself upon this deed of blood, we can better forgive him than we could if he were a man instead of a monkey. No person who has developed his faculties and powers to that degree which entitles him





to be called a MAN—"the noblest work of God"—will ever take pride in inflicting a wound, mental or physical, upon his fellow man: If occasion compels him, his pathognomonic signs will be those of humility and sorrow.

"Where is Sammy?" doubtless all my young readers would give a big orange to know.

He is having a good time with the young miss in the Peasant's dress. Four or five others have contested her efforts to monopolize the young doctor, and one, taking the



THE INDIAN GIRL.

character of an Indian girl, has occasionally succeeded in getting Sammy away from her. Just now the little Peasant is leaning very affectionately against his athletic shoulder, engaged in close conversation as the "sides" are taking their turn in the





quadrille. Her dress is such that Sammy gets a better glimpse of her sarcognomy than he can of that of most of the others, and with his knowledge of the science, he feels confident that his partner has regular and attractive features behind the mask which hides them from view. He is also pretty well satisfied that the Indian girl is worth having, for her sarcognomy is not so hidden by dress as to be altogether incomprehensible. It is unquestionably Sammy's knowledge of this science which has led him to be more attracted to these two young ladies than to any others of the many present arrayed in more gorgeous costumes.

Having found out who these two favorites are, I will intrust my readers with the secret. The Peasant girl is the daughter of Mr. Barkenstir, the wealthy cotton-broker who lives in Fifth Avenue. Her name is Julia, and Sammy is quite right in supposing that she is a magnificent-looking young lady. The Indian girl is the niece and adopted daughter of old Mrs. Beckendecker, a relict of one of the old Knickerbocker families residing on Lexington Avenue. The nose of this young lady is quite too prominent to harmonize well





with her other features, but she is really a handsome brunette, bearing the rare name of Marvellie, while her more successful rival is a sweet-looking blonde.

While I have been telling you all this the quadrille has been concluded, and the young people have repaired to their dressing-rooms to fix up a little, and give time to arrange the parlors for the lecture. With your leave your reporter will go out and take an airing while these preparations are being made, and then he will give you all further particulars of the Biddlewicker party in another chapter.





CHAPTER VIII.

THE LECTURE—SAMMY'S ADMIRERS SECURE THE FRONT SEATS—THE WAY IN WHICH WE HEAR, ETC.—THE CONTEST BETWEEN THE PEASANT GIRL AND INDIAN GIRL FOR SAMMY—THE LATTER WINS—AND DESERTS HIM WHEN SHE FINDS HE IS BLACK—THE GRACIOUS ACT OF THE PEASANT GIRL—THE TRIUMPH OF SAMMY'S NOBILITY OF MIND.



CASUAL peep through the lace curtains, which have the ingenious absurdity of concealing everything by daylight and of revealing everything by gaslight, presents to our visual organs the evidence that the young people are all seated, and are either listening to, or waiting for, the young lecturer. We will therefore re-enter the parlors of the Biddlewickers. Be quiet! Sammy





is speaking. We must step lightly or the sound-waves from the friction of our sole-leather will fall upon the ear-drums of the listeners in a way to make them conscious of the fact that what are called squeaking boots are in motion. Of course no sound in fact proceeds from such boots, they simply set in motion curious waves of air which report themselves to our auditory nerve in a way which in our language we have named squeaking. Every language doubtless has its distinctive name for the sound produced in the human ear by the friction of two or three layers of dry sole-leather when pressed and bent by our feet in the act of walking.

Sammy is standing upon a dry-goods box over which an old piano-cover has been thrown. He retains the mask and costume of a village doctor. But who are those immediately before him?

In the very first row of seats the young ladies who have pursued our young lecturer the whole evening have enthusiastically gathered. Right face to face with him in this row is the Peasant girl. She is generally successful in getting the start of the Indian girl, who is just now seated





immediately on her left. On her right is one of the lecturer's ardent admirers in the costume of a nun. When Sammy gets off something especially good they clap their hands and vie with each other in manifesting appreciation. The



SAMMY'S FRONT SEAT ADMIRERS.

whole front row, indeed, do this ; for while only four or five in the earlier part of the evening sought the young man's attention, more than double that number now enjoy nothing that is not illuminated with his black eyes glistening





behind his mask, and enlivened with his musical voice. Every one of them is an infatuated adorer, and they all feel certain in their own minds, that one who is so manly in form and action, and so mentally gifted, as this young man seems to be, must conceal still other attractions behind the expressionless mask which hides his natural features.

I am informed by a gentleman at my elbow that the young man has been speaking for over forty minutes and that I have lost a great deal by my absence. Sorry for that. It seems that Sammy has rapidly run over the sciences of Phrenology, Physiognomy, Sarcognomy, and Pathognomy, and illustrated his lecture with several interesting charts, probably the same ones I have shown my readers in a former chapter. My informant remarks that "if the young man has not received very much assistance in the preparation of his lecture, he is a remarkable fellow and will be sure to make his mark in the world. His voice," he adds, "betrays his youth."

As I entered he was explaining something of the mechanism of the eye. Just now he is speaking of the ear. Let us open our ears and listen.





“While I am speaking,” says the young lecturer, “the air which I expel from my vocal organs sets in corresponding motion the atmosphere between each of you and myself. These waves of air are gathered by the outer ear and carried quivering with motion, given them by my tongue and lips, to your ear-drum. Then this membrane, which extends across the orifice of the ear to modify the harshness of the waves when they are propelled with too much force, communicates the same motions to a chain of bones which is stretched across the middle ear, a cavity of the size and form of a kidney bean. This cavity is ingeniously supplied with air by two tubes called the Eustachian, which connect it with the passage to the throat, and the air occupying this cavity moves in accord with the impulse which the chain of bones has received. These waves, thus modified and prepared for their further journey, move onward through irregular cavities and circuitous canals to what is called the inner ear, where they agitate just such fibres belonging to the auditory nerve as are adapted to receive them. Some of these fibres are moved by one kind of a wave,





and others by still those of another kind, so that waves of air of a different character may enter the ear at one time and communicate through their appropriate nerve-fibres the motion peculiar to each, and it is in this way that we are made conscious of a variety of sounds at one and the same time. The three thousand nerve-filaments of the auditory nerve are called after the anatomist who discovered them the fibres of Corti. These, as remarked by Le Pileur, "give four hundred sensitive cords to each octave, of which the interval or space is one sixty-sixth of a note. It is," remarks this writer, "easy to understand from this how a cultivated ear can appreciate the slightest difference in sounds, just as the eye perceives the least difference in the degrees of light." (Applause from the audience, and especially from the ladies in the front seat.)

"It is further true," remarked the speaker, "that these auditory fibres can be so cultivated as to be thrilled by the psychic faculty, or soul, within, as well as by mechanical waves from without. That is, if anything serious happens to the outer parts of a well-cultivated ear, so that the waves from ex-





ternal sources are not communicated to the fibres of Corti, then impulses, not waves of air, may be sent through the auditory nerve from the psychic faculty or soul to agitate these fibres so that they will convey to the mind imaginary sounds of perfect accuracy. This bit of philosophy will account for the remarkable facts related of Beethoven by Le Pileur, who tells us that this celebrated composer became deaf at forty, notwithstanding which infirmity he composed all those immortal works which for himself were never performed except in his mind."

This extraordinary passage from the lips of our young lecturer brought a perfect storm of applause from the hundred odd-looking masked people who thronged the parlors.

One in particular ascended a chair and enthusiastically waved his handkerchief. This was Doctor Hubbs. Don't you tell. He came in just before the lecture commenced, and is disguised in the costume of the "Heathen Chineese." There is nothing unfair in his taking this course, inasmuch as everybody else is masked, and masked parties are expected to be composed of at least some of





our best friends in disguise. Sammy's way for accounting for the strange facts related of Beethoven took him by surprise. It was philosophical and without doubt original. The Doctor is therefore perfectly enraptured with his pupil, and he only hopes that all can appreciate this lecture as he himself is doing; for whatever preparation he gives Sammy for any occasion is exceeded in its results by the boy's own inspiration.

"This fact," resumed the young lecturer, after the applause had in a great measure subsided, "brings us to the question—Can a nerve-fibre leading out to any part of the body from the brain be acted upon at either end in such a manner as to physically influence the extremity opposite the one to which



DR. HUBBS AS A HEATHEN
CHINEE.





the stimulus is applied? If it cannot, then sarcognomy cannot be reliable. If it cannot, then the advice of Brown-Séquard, that if we want to develop and render more active the right side of the brain, we must exercise the left side of the body, is useless. But this authority tells us that by exercising the left side of the body, which is in direct nervous communication with the right side of the brain, the latter will be supplied more bountifully with blood, and in consequence of this greater nutrition will become more active and useful. Then it must be equally true that if Professor Buchanan has rightly located the ends of the nerve-fibres which proceed from the various groups of phrenological organs in the brain to certain described portions of the body, the exercise of these bodily parts where such nerves do terminate must give impulse to the circulation of the blood in those mental organs with which they communicate; hence, greater development and greater activity to them."

This was the unfolding of another new idea, as it fell in communicative waves upon the Doctor's ear, for although he had not found leisure to read





Professor Buchanan's Anthropology through, he believed that this application of the law laid down by Brown-Séquard was original in Sammy's brain. Of course the parlors were filled with the mixed and tumultuous waves of air, which communicated to the conscious sense of every one present the sound of wild applause, when the young lecturer gave utterance to this self-evident statement.

"Hence," resumed Sammy, "while you are exercising your arms and limbs to-night, you are giving to your brains greater possibilities, or in other words, you are sending them the material for additional convolutions and nerve-tracks; and while you are exercising your social and intellectual faculties you are developing your thoracic region; for when you thrill the brain-ends of your social



THE LITTLE NUN.





and intellectual nerves, the body ends are agitated thereby and the circulation of blood in the tissues about them is rendered more active. Then, according to the laws of muscular development, this additional circulation must impart growth."

During a perfect storm of applause the young lecturer thanked the audience for their attention and appreciation, and stepped grandly from the platform. In an instant he was surrounded, not only by his front-seat admirers, but by gentlemen and ladies from other portions of the room, who pressed forward to thank him for the lecture in which he had succeeded in making difficult subjects wonderfully clear. There was a general inquiry of "Who is he?" and an almost audible whisper going around to the effect that—"he is a brilliant young fellow, whoever he is!"

Immediately after the lecture, refreshments were announced, and it had been arranged that at a given signal at the tables the masks should come off. There was almost a rude elbowing among Sammy's front-seat admirers to place themselves where it would be convenient for the young lecturer to ask one of them to take his arm. Each tried to





get in front of the other. Roman physiognomy, like Roman valor of old, triumphed over Grecian beauty, and the young lady in the costume of the Indian girl marched 'off proudly with the one who had been the centre of attraction throughout the evening. The poor Peasant girl after this declined to take anybody's arm. Several gentlemen of cultivated manners offered her an escort, but to each one she gave, in something of a petulant tone, which she tried hard to conceal, a "Thank you," accompanied with the remark that she was not feeling quite well, and did not care to tempt herself with the good things which Mrs. Biddlewicker had doubtless provided. So she sat demurely in the corner, and fanned herself, after all had gone, and she threw back her mask to obtain the full benefit of the air, to which she was communicating her own agitation by the pretty instrument of sandal-wood which she was nervously moving. Much against Sammy's wishes, Roman physiognomy again conquered on reaching the refreshment room, for she secured two of the most conspicuous seats at the extreme end of the table, where she chatted rapidly, and so waved her huge fan, as to





carry the artificial breezes under her escort's as well as under her own mask. Each of the Spon-sies had a partner, and while the latter believed their escorts were real live monkeys, they did not



know but that the surprises of a masked party might reveal them as two small boys in monkey's disguise. Those of Sammy's most enthusiastic admirers who came to the table,—and none stayed away but Julia Barkenstir,—managed to get as near the young lecturer and his lucky companion as they could, trusting that they might

MISS JULIA BARKENSTIR
GRIEVING OVER HER DEFEAT. share with the latter some of the former's attentions. But in the absence of these, there was a pleasure in being in his magnetic atmosphere.

At the signal, which was the shrill chirp of an automatic bird nestling in the apex of a pyramidal





bouquet which rose to the height of fully three feet from the centre of the table, the masks—all but one—were snatched from the faces of the young people by their own impatient hands. The rooms were clamorous with exclamations of surprise for some moments. “I thought you were Gertie!” “I thought you were Johnny Bentley!” “See there! there is Delia Zermers!” “You don’t say that’s you, Jed! I thought you were in Baltimore!” “But look at the knight: I supposed all the time that Ellery was the Highlander!” And so the ejaculations of astonishment on finding out who each other were went the round of the table, loaded with good things, which extended through two large rooms with their folding-doors thrown open. Let us take a peep at Sammy’s end of the table. He retains his mask, greatly to the surprise of the Indian girl, who now shows her naturally commanding brunette face, with somewhat of a Roman outline. She has stopped her gay chattering and is seriously begging her partner to unmask, while all of the front-seat admirers of the young lecturer are looking on with impatient curiosity.

The ladies with the Sponsies have found out





just what their partners are ; for, monkey-like, the latter, in imitation of the rest, dashed their masks aside. But the ladies are greatly pleased with the little, sad, upturned faces as they nibble with characteristic activity some nuts to which they had helped themselves even before the masks had been removed.

The importunities now became so general from all the ladies and from many of the gentlemen, that the one who had so greatly entertained the whole company for the entire evening should reveal himself, that Mrs. Biddlewicker stepped behind his chair and advised him to unmask. She instinctively thought that when he had shown himself not only a gentleman but a scientist, and that too he had aroused in the young people all the conviviality they had exhibited, his color would give no offence.

“ Would you think as much of me as you now profess, if I am black ? ” Sammy inquired in a roguish tone of his partner, who imagined from his manner that it was simply a question asked in jest.

“ Oh ! if you are black, red, or yellow, if you





have a cleft nose and a hare-lip, still will I cling to hee," she exclaimed with a merry laugh, throwing her bewitching black eyes upward and moving her hands dramatically to her bosom for she was an impulsive girl.



THE LECTURER UNMASKED

While this was being uttered, or rather just as the speaker had concluded, Mrs. Millstone playfully stepped behind Sammy and snatched away the mask! I wish my pen could describe the expression of surprise which took possession of every





one, but especially of Marvellie Beckendecker. It is simply useless to try. But I must tell you of Marvellie : for a moment she shrugged her shoulders and drew partially away from her partner, staring at him with eyes glowing with indignation and surprise ! Then rudely, aye, cruelly, without one word of apology, she withdrew from the table, and with scornful look and gesture proceeded to the dressing-room. As she passed upstairs, Julia Barkenstir noticed her, and feeling instinctively impressed from her manner that something had happened, she stepped softly down to the door of the refreshment rooms, and peeping in unobserved, her eyes fell full upon the sable young lecturer, whose face was cast forward in an attitude of sorrow as if meditating upon the proper course to pursue. A momentary scowl of disappointment and surprise passed involuntarily over her pretty Grecian face ; she saw at a glance the cause of Marvellie's indignation ; reflecting for a moment upon the relative value of intellect and true manliness as compared with color of skin and social position, and recalling the admiration which the young man had awakened in her mind while he was concealed behind a mask,





she glided in, and with a gracious bow and sweet voice asked—

“ My dear sir, may I have the pleasure of occupying this vacant chair ? ”

If a fair-haired angel had descended, bearing from the blue ether of heaven the perfumed breath of fraternal love and the holy benediction of our benign Creator—the Great Common Father of the colored as well as of the white race—the effect could not have been more grateful to Sammy's wounded heart, or more electrical to those who remained. Nearly all of the front-seat admirers of the young lecturer had vacated their places as well as those who were the willing companions of the monkeys. The latter seemed to regard the monkey as a more desirable associate than an educated colored youth. To such strange freaks do our prejudices lead us !

The young lady who had been disguised as a nun ached to take the step that Julia Barkenstir had done, but her courage failed her every time she attempted to rise from her seat. She could have gracefully excused herself to her escort, for he had with him another companion to whom he





had given his left arm previously to having offered her his right. She was, too, the daughter of Mr. Josiah Goodlove, who had been for a quarter of a century a well-known friend of the colored race. Her sympathies were burning for expression; the revelation of the young man's color did not lessen her admiration for him; but she lacked the moral courage to step forward under the keen gaze of the surprised and startled people, who were really hesitating between two courses of action: to leave the table, or lionize the smart young colored man. Either door seemed open to them. They could do as some of the rest had done, or they could make such a hero of the sable lecturer as would raise him in dignity to their assumed level and make his presence among them an honor rather than a disgrace. Feeling thus, it is strange that they hesitated for a moment.

The brave and gracious act of Miss Barkenstir added the decisive weight to the humane side of the wavering scale, and carried the sympathies of all present with her. As she took her seat, and looked up with a dignified air of self-possession, her face beaming with satisfaction, she was greeted





with the clapping of hands and the tapping of knives and spoons upon goblets and plates.

It was Sammy's turn now. With that customary sensitiveness and modesty which he had exhibited on so many former occasions, he felt keenly the embarrassment of his own position, and the no less awkward one of Mrs. Biddlewicker, who stood near by, appalled at the result of the little arrangement which she and Mrs. Millstone together had effected; and he felt grieved rather than angered at the prejudice which had been exhibited toward him on account of his color. He arose from his seat, and in a calm, subdued voice related the circumstances which had led him to participate in the festivities given Miss Minnie on the anniversary of her birthday; and proceeded to say that, if there was one person at the table who would prefer to have him withdraw, he would most cordially do so. A pause followed, during which the rustling of a garment or the movement of a foot would have afforded relief. "I will then," resumed the young lecturer, "ask those of you who prefer that I should remain, to signify it in some manner."



Miss Barkenstir and Miss Goodlove clapped their hands and exclaimed, "Stay! stay!" And this word "stay" went around the table with an echo from every tongue, amidst another deafening round of applause. He



THE YOUNG LAWYER.

feelingly thanked all present for their kind applause and words of welcome; and turning gracefully to Miss Barkenstir, he feelingly said — "Whatever may be your prejudices, my heart goes out to you for your constancy; and though you should never give me one word or look of recognition after this evening, I shall ever remember you with gratitude for your kind condescension in dropping down here by my side at a moment when every sensitive nerve in my body was being thrilled with emotions of mortification and despair."





This neat little speech was followed by clapping of hands and glances of approbation directed to the heroic lady to whom the concluding words were addressed ; to all of which she responded with bows and smiles as melting and bewitching as they were magnetic.

As soon as Sammy had taken his seat, a young lawyer who had accompanied Miss Minnie to the table, and learned from her mouth the history of the young lecturer, arose and offered resolutions as follows :

“ Resolved, That a vote of thanks be hereby tendered by the ladies and gentlemen present to Master Samuel Tubbs, for his generous and successful efforts for our amusement and entertainment this evening.

“ Resolved, That we recognize him as a man and a brother, notwithstanding the fact that his generous heart and gifted brain are enveloped in a colored cuticle ; furthermore, we welcome him at this festive board as one worthy of our recognition, regard, and encouragement.”

An older head might have been able to frame these resolutions more happily ; but they were



written down hastily, on the spur of the provocation, without a moment's thought. They were seconded by the little nun; and Miss Barkenstir, rising from her chair in a most charming manner, called for the vote, when the resolutions



MISS BARKENSTIR PUTTING
THE QUESTION.

were adopted unanimously amidst a renewal of the clapping of hands: all of which was gratefully acknowledged by Sammy, rising and bowing.

Miss Minnie was in the dressing-room all this time, trying to pacify the indignant ones who did not return to the refreshment-room. Nearly all of the disaffected young ladies and gentlemen went directly home. Dr. Hubbs, unfortunately for Sammy, left immediately on the conclusion of the lecture; but Mrs. Biddlewicker and Mrs. Millstone gave him their sympathy, and used





their personal influence with those of the disaffected who remained, to so good a purpose, that the latter took special pains to bestow their smiles and bows of recognition upon the sable youth.

By the time the parlors were refilled, the festivities of the young people were resumed as if nothing had happened to mar them. Those who had left were hardly missed. Miss Barkenstir felt herself well repaid for what at the outset seemed like a sacrifice of her personal pride ; for she was treated as a heroine for her generous act in filling the chair made so abruptly vacant by the proud Marvellie ; and she found herself in undisputed possession of the brightest young fellow in the room. In every respect, excepting color of skin, which came from the palette of the Great Artist, instead of the stain of crime, Sammy was all that her imagination had pictured him when his face was hidden by the mask. His features were intelligent and attractive, and his conversation instructive and captivating. " If," thought she, " everybody could appear thus noble when Jehovah tears the masks from the whole human family at the last day, no angel spirits would leave the sacramental





table." For the remainder of the evening she clung to him with as much pride as she had done at the outset. And there were not a few who would gladly have been in her place ; for they saw and overheard enough to discover that Sammy was an interesting beau, if he was not a white one.

The monkeys, after refreshments had been served, remained in the basement. They preferred to loiter among the nuts, oranges, and raisins. Nothing but the departure of their young master could have dragged them away from this charming spot. It was like being turned loose in their native haunts of tropical fruits. But at one o'clock there was a call for Master Samuel Tubbs. The Doctor had sent the carriage for him. So, calling his braves from the refreshment-room, he gathered up his things to depart. As he was leaving, no one was more cordially grasped by the hand and blessed with good wishes by all the young people, than the modest, intelligent and dignified young lecturer.





CHAPTER IX.

THE TALK ABOUT THE MASKED PARTY—MR. BARKENSTIR SPEAKS—SO DO MRS. BECKENDECKER AND MR. GOODLOVE—A LAUGHABLE ANECDOTE—THE CEREBRO-SPINAL SYSTEM—THE PNEUMOGASTRIC NERVE—SPONSIE NUMBER 2 NEARLY PUTS OUT THE BLACK CAT'S EYE—THE MONKEYS TO BE BANISHED.



HE remarkable episode related in my last chapter formed the exciting topic of conversation at the breakfast-tables of fifteen or twenty well-to-do up-town families the morning following the party at the Biddlewickers. Some could not see how Mrs. Biddlewicker could possibly have been so short-sighted as to invite the young colored man. Others thought it a





capital joke from beginning to end, without taking into account the shadows in the picture caused by the wounded pride of the disaffected young people, and the wretched feelings of the innocent one whose presence had occasioned all the trouble. Still another class was bitter in its denunciations of those who made an open exhibition of their prejudices by leaving the table, and thereby placing not only the hostess in an embarrassing situation, but cruelly wounding the feelings of a sensitive and cultivated young man, simply because, in the Providence of God, he happened to have a black instead of a white skin.

Among the first class was Mr. Barkenstir, who applauded his daughter for her heroism. Personally, his prejudices against the colored race were as diamond-pointed and cutting in their expression as were those of his most conservative neighbors; but everything that his Julia did was in his estimation perfectly right, and he boasted of her magnanimity and courage to his co-partners and friends when he went to his counting-room the next morning. In his opinion, Mrs. Biddlewicker was a woman of singular indiscretion, who had placed





nearly a hundred young people in an unnecessarily awkward dilemma, from which the self-sacrificing and courageous spirit of his daughter had extricated them at a moment when the festivities of the evening were about to terminate summarily in an open revolt of all present.

To the second class belonged many of the young friends of Marvellie Beckendecker, who told the joke to all of their acquaintances, and pressed their sweet-scented embroidered handkerchiefs to their lips as they nearly exploded with merry laughter. The old lady, the aunt of Marvellie, did not relish the joke so well ; and while she approved of the conduct of her niece, she did not censure Mrs. Biddlewicker for having included the young man among her guests. She did not, indeed, trouble herself to analyze the causes of the disturbance, but simply passed favorable judgment upon the resolute manner in which Marvellie resented what she called the "presumption of the darkey;" and as she would bring out this last utterance, something of an asthmatic cough would come with it, showing that her sense of injury was not deeply felt, in view of





the wise course which her spirited niece pursued.

Among the last-named class to which, to the credit of humanity, a majority of the critics belonged, you may confidently expect to find old Mr. Goodlove and Doctor Hubbs. The former made it his first business to call upon the latter and make the acquaintance of the Doctor and his remarkable pupil. He greatly regretted that his own daughter did not make haste to take the part so bravely performed by Miss Julia. He also called upon Mr. Barkenstir, whom he had never had the pleasure of meeting, to congratulate him upon the sublime heroism of his daughter. But he was surprised to find himself surrounded by a winking and fun-making group of cotton-brokers, whose kindness of heart in applauding the act of Julia was more than balanced by bitter, outspoken prejudice to the African race, which they regarded as so vastly inferior to the Caucasian that it could never receive social recognition. "What," said one derisively, "is a darkey, any way, but a cross between the monkey and the cocoa-nut?" In the argument which ensued no one of them cared





to consider how the negro was treated in England or France; in this country they insisted that the existing prejudice would be eternal.

Sammy had never before encountered any of it. He had been so much petted and smiled upon by



MR. GOODLOVE AMONG THE COTTON-BROKERS.

the patients and friends of Dr. Hubbs, that he simply had a faint appreciation of it by what came to his ears through the traditions of his family.

Between one and two o'clock Mrs. Biddlewicker, her daughter Minnie, Mrs. Millstone, old Mr. John





son, the Doctor and Mrs. Hubbs, and Sammy gathered together like a surprise party, without pre-arrangement, in the Doctor's office, and talked over the exciting affair. In the course of the conversation old Mr. Johnson stated, "that not many months ago, the distinguished Mr. Frederick Douglass was refused a dinner in one of the large hotels in St. Louis, simply because he carried the evidences in his skin that his mother was a black woman. The fact that his father belonged to one of the first families of Virginia did not count for anything," said the old gentleman with a significant smile. He furthermore added that Mr. Douglass once remarked that the whites and blacks ought to get along well together, and that such fraternity could not be impossible when he had peaceably carried about with him the blood of the two races in his own person so many years. This bit of pleasantry had its due effect upon all the conversationalists.

Mrs. Biddlewicker related an anecdote of an occurrence at Troy, which, she said, she read in the *Philadelphia Press*. "The Hampton colored students arrived at the Mansion House, whereupon





the pretty white waiter-girls went in a body to the proprietor and declared they would not wait on the 'niggers.' The proprietor was a sensible man, and stated his troubles to his boarders with a very satisfactory result. The ladies and gentlemen at once volunteered to act as cooks and waiters '*pro tem.*,' and the supper was prepared and the table waited upon. The colored strangers, however, when they seated themselves, discovered the situation, and asked that some of their own number be allowed to attend to the table, and that the ladies and gentlemen sit down. This was refused, and the meal went on, the ladies and gentlemen acting as servants, while the Hampton students were much embarrassed but very grateful."

Dr. Hubbs followed by saying that "the utter disregard of the feelings of educated people so often exhibited by the vulgar and ignorant, simply because the subjects of their dislike are colored, can not much longer be tolerated in a Christian community. It is contrary to the spirit of the age, and must sooner or later yield to nobler impulses. Even if we have prejudices, we must always respect the rights and feelings of others. With all my





prejudices to the use of tobacco," he remarked, "I have been laughing heartily this morning over a tit-bit I found in my newspaper." Taking the paper from his desk, the Doctor, with a face beaming with humor, read the following:



THE VICTIM.

"A lady of truly manly spirit, accompanied by a small poodle, is said to have sadly failed in an attempted reformatory movement the other day. She entered the smoking-car of a Western train and solemnly refused to go into another car, observing that her presence would keep the occupants from smoking. One

stony wretch, however, insensible to the claims of refinement and reform, began to enjoy his accustomed cigar, which was suddenly snatched from his lips, with the remark, in high treble, 'If there is anything I do hate, it is tobacco-smoke!' For a





time the offender was silent, and motionless, then gravely rising, amid the plaudits of the assembled smokers, he took the pet poodle and gently threw him out of the window, sighing, 'If there is anything I *do* hate, it is a poodle!' No mortal pen could describe the feelings of that reformer."

"Now," remarked the Doctor, at the conclusion of a jolly laugh all round, "while my sympathies are decidedly with the principles of the lady in this instance, they certainly do not follow her in her method for their enforcement. She was not obliged to take a seat in the smoking-car, and consequently no one was infringing upon her personal rights. But when she intruded her presence in the coach set apart for smokers, and tried to enforce her views upon them in the impatient way related, she was clearly trespassing upon the rights of others, and with all due sorrow for the sufferings of the little poodle, the innocent victim of its mistress' mistaken zeal, I must say that in my opinion the gentleman served the lady not very far from right. The most remarkable exhibition of unseemly prejudice," added the Doctor, "that has come to my notice lately, was the rejection of an





application of a young Hindoo theological student for membership to what is called the *Welcome* Division of the Sons of Temperance in New Jersey, because his skin was a shade darker than that of a sunburnt farmer's boy. To a mind not blinded by such prejudice the fact would suggest the inference that only white people are weak enough to become drunkards." This bit of comment brought a gleam of sunshine from Mr. Johnson's generous features.

I have not time or space for a detailed account of all that passed between the good people who accidentally met at the Doctor's. Suffice it to say, that no one of them seemed to regret, excepting on Sammy's account, that the latter had attended the party. Miss Minnie reported herself as having warmly taken the part of her mother when she endeavored to conciliate the disaffected ones who flew from the refreshment-room at the time Marvellie abruptly left, and she expressed herself as greatly pleased with the manly course taken by her escort, the young lawyer, at the time she was absent from the table.

Old Mr. Johnson had called to ascertain when Sammy could deliver the lecture which young Dig-

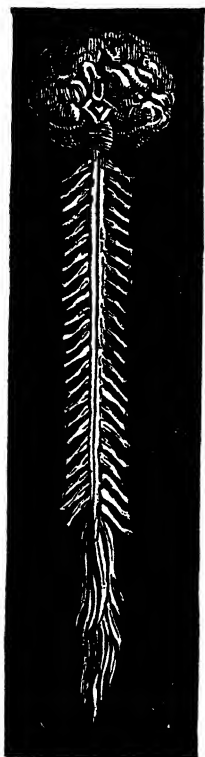




gles and some of his friends had expressed a wish to hear ; Mrs. Biddlewicker and Minnie, to apologize to the young lecturer for the rude treatment he had received at their house ; Mrs. Millstone, to tell Doctor Hubbs how badly she felt that she was the means of getting Sammy "into such a scrape," as she termed it ; and Mrs. Hubbs had been attracted to the office-room to hear what the company had to say about the exciting affair.

After the visitors had departed Doctor Hubbs took his phaeton to make professional calls ; Sammy applied himself attentively to his neglected work, and Mrs. Hubbs dropped into an easy-chair to read the daily newspaper. Inasmuch as all are engaged in their individual pursuits, not even excepting the two Sponsies, who are in the kitchen going through their military manœuvres of which they never become tired, I will occupy a little time in telling my young readers something more about the nerves. In preparing Sammy for his last lecture, the Doctor showed his pupil some pictures which I have not spread before you ; and as I want you to keep up with the young lecturer, I must present them here.





CEREBRO-SPINAL SYSTEM.

We will first look at the trunk of the cerebro-spinal system. This picture gives us a front view, but you will see the cerebellum, or back brain, dipping down on each side below the cerebrum, or front brain. All those branches coming out on either side of the spinal cord, as well as those hanging down at the end, represent nerves which are cut off at a short distance from the points where they leave the main trunk. It would be nearly or quite impossible in a cut of this kind to give the nerve-branches entire. Here we see the nerves which extend throughout the muscles and tissues of the body, and supply the former with the nervous forces which enable us by the aid of our muscular





bands and cords to walk, run, jump, and climb fences whenever we choose to do so. When we want to move our limbs, the desire of our psychic faculty, or soul, is made known to the brain, and from this reservoir forces are at once dispatched to those muscles which, under nervous stimulus, can cause such motions. As remarked in a previous chapter, the left side of the brain mainly controls the muscles on the right side of the body, and the right side of the brain chiefly controls the muscles on the left side of the body. These nerve-fibres from the two hemispheres cross over at the medulla oblongata, and then issue at regular intervals from the spine, at various places, to control the muscles which are located on the same side of the spine as that from which the nerves make their exit.

The cerebro-spinal system also supplies the greater part of the nerves of sensation, or, in other words, the majority of those nerves which enable us to feel the sensation of pleasure or pain, or to know by the sense of touch when we come in contact with anything. But the sensitive nerves, unlike those controlling the muscles, cross over from





the right to the left side, and from the left to the right side, throughout the entire length of the spinal cord.

Perhaps you would all like to know what a nerve looks like. Well, it is made up of a lot of filaments, or threads, bound together, and the nerve filament, or thread, is so small that in the brain and spinal cord it is only one ten-thousandth of an inch in diameter. In the nerves of the body, however, outside of the brain and cord, the filaments are about five times larger. A single filament is round, with an outer, colorless, transparent tubular membrane of great delicacy, and an inner grayish, firm, transparent cord, and between this inner cord and the outer tube there is a thick white fluid. Each one of these nerve-filaments acts like an independent telegraphic wire, and is so insulated from the others which are bound together with it that it acts independently of the rest from its beginning to its end. It is indeed this wonderful combination of independent conductors composing each nerve which makes the telegraphic system of the human body so perfect. It is supposed that the inner cord of a filament is the real con-





ductor of nervous forces and impressions, and that the outer tubular membrane, with the fluid between it and the cord, constitutes the insulating substance. Then to think of it! those filaments are so numerous in the Capitol of the Nervous System—the Brain—that they are supposed to number hundreds of millions! Whenever you want to behold the most wonderful telegraphic station on earth, look in the glass! it is located above and behind your face! your eyes are its windows, your nose, with its double orifices, its ventilators; your ears, its doors for its phonetic reporters; and your skull, its roof and inclosing walls. Within the latter various faculties are as busy as so many departmental clerks and telegraphic operators in dispatching the business and messages relating to the strange physical processes which keep you alive; and you have but to touch one of these busy-bodies with the impulse of a wish to move backward or forward, walk, run, jump, or to perform any muscular movements suited to your bony and muscular framework.

Movements performed by your desire are called voluntary motions; nearly all motions of this class





are effected through the **Cerebro-Spinal System**, while nearly all the involuntary motions, such as the circulation of your blood and lymph and the carrying on of the exchange between the blood and tissues, are effected by the **Vegetative Nervous System**, as described in a previous volume.



**DIAGRAM OF PNEUMO-
GASTRIC NERVE.** Now, again, I want to call your attention to a big pair of nerves which are the medium for both voluntary and involuntary nervous action. We will reproduce a picture from Dalton which represents this pair. It will be seen that it originates at the side of the medulla oblongata, with which it is connected by ten or fifteen separate filaments. The filaments bunch together, forming one nerve, and descend through the floor of the skull to the trunk of the body, where the filaments again





branch out and visit the breathing-organs, the heart, the stomach, the liver, and perhaps other organs. The other one is mainly like the one just described, and need not be separately presented here. The pair descends on each side of the neck, and on entering the body visits so many parts that the old anatomists named it the “par vagum,” or the wandering pair.

The voluntary power of this pair of nerves is exhibited when we talk or sing, or hold our breath, or when we perform the first motions of swallowing. In its involuntary action it might well be called the helper of the Vegetative Nervous System. It assists the latter in working the breathing-passages, and it has the main control of the tube through which our food descends until it reaches the pyloric orifice, or gate, between the stomach and the duodenum. It has sensitive nerves in the lining of the stomach, and nerves of motion outside of this organ; the former stimulate the secretion of the gastric juice when the food enters it, and also give notice to the outer ones when all is ready for giving the contents of the stomach a good churning. Then





the outer ones, acting upon the muscular fibres, set the stomach into that commotion which reduces the food to such a condition that it is suitable to pass the pyloric gateway, all of which you have read about already in Volume III.

The pneumogastric nerve also exercises an influence over the heart, liver, very likely the kidneys, and possibly other organs. When we come to look into its function, we are compelled to regard the vegetative nervous system as a sub-contractor, as we call one who works under the direction of some higher contractor; and this higher contractor, who is in turn subordinate to the brain, is the pneumogastric nerve.

The nerves which keep the blood moving through the arteries, capillaries, etc., have been sometimes called the vaso-motor nervous system. But this system is but a part of the vegetative nervous system, and is under its control. The latter keeps all the vital machinery in motion much as the steam of an engine keeps its machinery going. Then the pneumogastric nerve reaches down from the skull into this complicated mechanism much as the arm of the engineer





reaches out to the levers, valves, etc., of an engine, and exercises more or less of a guiding power. In exercising its influence over the lungs, heart, liver, etc., it very likely acts under the direction of those organs of the brain which Professor Buchanan has mapped off in front of the line drawn perpendicularly before the ears in the chart given on page 130. In almost a direct line one above another, in the chart referred to, we find the locations of those organs which we are told exercise a direct influence over certain vital parts. For instance, the organ marked pulmonic has control of the lungs; the one marked cardiac presides over the heart; hepatic, over the liver; gastric, over the stomach; and renal, over the kidneys. Now may it not be that the pneumogastric nerves are the telegraphic wires through which these organs in the brain directly communicate with the organs named in the body? Turn back and look at the chart again; it will repay you to do so.

Mons. Papillon would have us believe that the heart is, as it were, bridled by the pneumogastric nerve so that that organ may be quickened or





slackened under impulses sent from the mind. We know the fact, but he gives us an explanation of the cause. He calls these nerve-bridles the accelerator and retardator nerves. He claims that it is through these nerves that every shade of feeling influences the heart to quicker or slower action.

“Every agreeable or joyous emotion of the soul,” says this writer, “excites the accelerator nerves of the heart, and causes that organ to beat with great rapidity, lessening at the same time the force of its contractions. The phrases *the heart leaps with joy*, or *flutters with joy*, admirably characterize this action of the accelerator nerves. The facility with which the heart drives the blood into the arteries, under such circumstances, produces that feeling of comfort and pleasure which is expressed by the words *a light heart*. On the other hand, all sad or painful feelings act chiefly on the retardator fibres of the pneumogastric nerves. Emotions of this description diminish the rapidity of the heart’s beatings, and so increase the amount of blood discharged from that organ at each beat; hence the contrac-



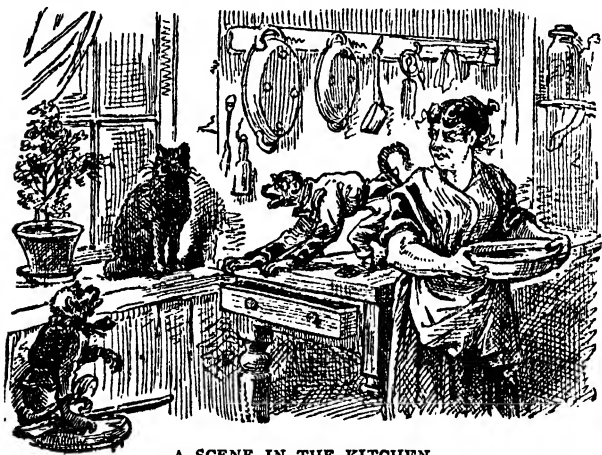


tions by which it drives the blood into the vessels, are laborious and protracted. These contractions, attended as they are with pain, give rise to a class of sensations expressed in common language by such phrases as *oppression of the heart, the heart is agonized, etc.*"

With this explanation you will all understand which nerves control your heart when you feel jolly, and which ones are influencing that organ when you are feeling unhappy. But, I imagine, you are wondering by this time what the young lecturer is about. Well, his heart is just now rather under the influence of the retardator nerves, for the monkeys have been making so much of a racket in enacting sham fights and firing their miniature guns, that Mrs. Hubbs has given Sammy notice to take both of them home with him this evening. Poor Jim (the black cat) has nearly lost an eye by their carelessness. All the hair has been burned off from the left side of his head by a blast of powder which came from one of the guns that accidentally went off in the hands of Sponsie Number 2. That side of the poor cat's face is swollen and the eye completely closed.



so that he looks queerly enough. Bridget was so enraged that she boxed the monkey's ears severely with a hand right out of the flour-barrel, from which she was filling the bread-bowl for the purpose of making biscuits just as the accident took place.



A SCENE IN THE KITCHEN.

Badly as the two animals feel with their retardators in full activity, it would thrill your accelerator nerves and make you laugh in spite of your sympathies to see them. Jim looks wildly with his remaining eye at Sponsie Number 2, and the





latter stares from under his flour-crested eyebrows at Jim with a good deal of that same restless surprise that the young folks viewed each other in the masks at the Biddlewicker party. Sponsie Number 1 is gazing sadly upon both. I have tried to give you a picture of the scene, but the artist cannot portray the emotions which thrilled the nerves of Jim and Sponsie Number 2, nor can he pencil the singular activity which must of necessity be going on in the pneumogastric nerves of all the animals, Sponsie Number 1 included. An attempt to do so would be like trying to photograph a mosquito on the wing and reproduce in the picture his persuasive musical hum. But the sentence, whether just or unjust, has been pronounced, and there will be quite a clearing of Bridget's kitchen when Sammy goes to his school between seven and eight o'clock to-night. With this very brief summing up of the situation, so far as the Sponsies are concerned, I must close this chapter.





CHAPTER X.

BAD NEWS—THE RETARDATOR AND ACCELERATOR NERVES—A TRAGEDY IN SHIN-BONE ALLEY—THE DEATH OF SOME PETS—SAMMY'S SORROW—THE DOCTOR DIVERTS HIS MIND WITH INTERESTING CONVERSATION RESPECTING OUR NERVOUS TELEGRAPH, AND HOW WE LEARN TO USE IT—THE STRANGE RESOLUTION OF SAMMY.



HUSH! hush! Be quiet! my young readers. I have some bad news to communicate! I hardly know just how I should break it to you, for physiology teaches us that the nervous bridle which the brain puts on the heart becomes more or less unmanageable when any great or sudden emotion of the mind occurs. That is, it fails more than ever to be controlled by the





will. It is through this involuntary action of the retardator and accelerator nerves belonging to the pneumogastric pair, that life is endangered sometimes by the sudden communication of either sorrowful or over-joyful news. We should be very careful, therefore, in our intercourse with nervously sensitive people, not to seriously disturb the harmonious action of those nerves which reach down from the brain, and communicate all its emotions of joy, grief, horror, surprise, anger, and fear. It is a common peculiarity of the human mind to like to surprise people with either good or bad news, or to visit them unexpectedly. Look out that this inclination is not gratified at the expense of the health and perhaps life of those with whom you associate.

Now, how shall I tell you the distressing news which you must know some time unless I cut my narrative short by abruptly closing this volume without an additional word? I will see if I can lead you along so as to gradually prepare your mind for the reception of something which would startle you, and greatly disturb the workings of your retardator and accelerator nerves, if communi-





cated in a hasty and inconsiderate manner. And from the course I pursue I desire that you take a lesson of prudence, and if you should ever have some sorrowful tidings to communicate by letter or telegraph, precede the worst feature of it by something which will prepare the one with whom you are communicating for hearing, without undue surprise, a fact painful enough to bear when received in a way that will not shock as well as grieve the sensitive mind. So, too, if you have news and surprises of an excessively happy character, remember the sensitiveness of the retardator and accelerator nerves, and prepare the mind of your friend or correspondent for the good tidings or events, in order that you may avoid setting his heart on an uncontrollable gallop.

By this time you must all be ready for the grievous tale I have to tell ; and I will so relate it as to carry you step by step to the final tragic revelation. When Sammy took the two monkeys to his Twenty-seventh Street home, last evening, they kept up such a banging that old Mrs. Tubbs said she could not stand the racket. The guns were consequently taken from them and hidden





in Esther's room. Before placing them between the two mattresses of her bed, Esther loaded both of them with balls as well as powder, remarking, as she did so, that she should on the following day shoot some rats which came out in the back-yard to sun themselves when old Blücher would lie sleeping in front of his kennel. Now, while Sammy was instructing his evening class, Esther being present with most of the other members of the family, these two mischievous Sponsies made a persevering search for their hidden weapons. With the cunning peculiar to creatures of their species they had little difficulty in finding them, and when the young lecturer was right in the midst of his physiological explanations to a large audience of colored people, the reports of two guns were heard, followed with the most piercing and agonizing howling and whining from old Blücher. The peculiar cry of the dog rather than the firing of the guns startled everybody, and in an instant the parlors were vacant and the back-yard was crowded with people.

There lay poor Blücher, kicking, and raising his head in a most beseeching manner, while



the blood was flowing from a wound in his neck in the region of the carotid artery. But



THE TRAGEDY IN SHIN-BONE ALLEY.

where were the monkeys? Neither of them was visible! Could it be that some wanton boy had shot good old Blücher? Ah, no! A little way





from the faithful dog, in the dim light that struck across the alley from the back-parlor window, lay Sponsie Number 1, motionless. Perhaps too neglectful of the noble dog lying there writhing in agony, all rushed into the house with the limp and unconscious monkey. All were clamorous to know if he were dead, and crowded around the table upon which he was speedily stretched. The wound was not easily found. He was bleeding from his mouth, and gave no external evidence of injury. A lad was despatched for Doctor Hubbs, while Sammy proceeded to see if he could restore poor Sponsie with electro-magnetism, as he had done on a former occasion. He thought perhaps it might be simply the result of a nervous shock. The machine was being vigorously applied by Sammy and young Diggles when Doctor Hubbs entered. He examined closely the monkey's mouth, and with a probe traced the ball which had entered through it and lodged in the medulla oblongata. The fatal lead had touched the vital spot, and Sponsie doubtless fell dead in an instant after receiving the charge. As nothing* could be done for him, the Doctor, led by Sammy and





closely followed by the gaping multitude, proceeded to see what could be done for poor Blücher.

"Too late!" exclaimed the Doctor, after examining the wounded animal, that only gasped and feebly moved a leg at brief intervals! The next inquiry was directed as to the whereabouts of Sponsie Number 2. Had he also fallen in what was intended for only a sham battle? Not likely, for there were but two guns from which Sponsie Number 1 had received one ball and old Blücher the other. Sammy's theory was that the two monkeys entered into their usual diversion near where old Blücher was lying, and that Sponsie Number 1 was killed by the ball from the gun in the hands of Sponsie Number 2, while the dog received the contents of the gun which was discharged by Sponsie Number 1. All concluded that this must have been the way in which the two pet animals came to their untimely death.

Where, then, was the surviving soldier? The alley was searched in vain, and the colored people visited the yards and basements of all the houses in the neighborhood. Up to this hour not a trace





of the frightened simicide has been discovered. Perhaps he fears arrest ! More likely he is afraid to come within a mile of those horrid guns after what has happened !

How does Sammy bear up under his bereavement ? He feels broken-hearted enough, I assure you. His retardator nerves are so acting upon his heart, that that organ labors slowly and painfully to perform its function ; and you may well say that his *heart is agonized*, as this condition was aptly stated by M. Papillon. With all his sorrow, he has an appointment to lecture at Lincoln Hall to-night. The bills announcing it were posted day before yesterday, and the entertainment cannot well be deferred, for this is the only night for a month to come that this hall, which is a popular one among the colored people, can be obtained. Old Mr. Johnson, hearing of Sammy's misfortune, tried early this morning to change the engagement for an evening some time next week ; but for the reason stated this does not seem practicable. Doctor Hubbs is doing his best to keep up the spirits of his pupil by engaging his mind in interesting conversation about the nervous system. Just





AN IMAGINARY TRIP TO VENICE.

now he is telling him that to be ushered into the world, as well as to be taken out of it, is a rather serious business. Listen :

“Imagine,” says he, “that you were to be blindfolded and taken in a balloon from your native country, and dropped into a gondola in Venice, and then the covering should be removed from your eyes. The queer appearance of the houses, the absence of streets, your inability to speak so that anybody could understand you, your ignorance of the language of the people, and the strange mental inquiries





which would be going on in your brain as to where you were, would utterly confound you.

“What momentary successions of surprises, then,” continued the Doctor, “must fill the mind of a baby when it first opens its eyes and ears upon this strange planet! It finds itself with arms and limbs which it does not know how to use; with vocal chords and tongue which it cannot employ in articulating words; with ears which only convey sounds which it does not comprehend; eyes which see objects with which it is entirely unfamiliar; and finally with a brain which is provided with hundreds of millions of nerve-fibres which it must learn to use! Professor Raymond has presented this matter very strikingly. In the course of a lecture, he said:

“It is only by steady practice that babies learn how to use their senses. Neither you nor I can rightly estimate the amount of knowledge of these things which an infant learns, and which we can never surpass as long as we live. No teacher ever taught the mind as much as a baby learns in its youth. Suppose you were to be put in a telegraph-office with a hundred thousand instruments,





where all the business was done in cipher, with a different cipher for each instrument, and were obliged to learn the whole, and reply to each message over a hundred thousand instruments at the same time. Who would not go crazy? That is what the baby does, when he lies there sucking his thumb, and we think he is doing nothing.'"

"The baby," added the Doctor, "reaches out from the cradle for its mother, thinking to touch her delighted face when she is sitting at a far-off window, for it has no idea of distance; it turns its eyes and ears in the wrong direction when its little new name is called, for it has got to learn to trace the sources of the sound-waves, when by any cause they are set in motion. By watching every expression of face, and every movement of its mother, it must pick up a knowledge of the words which it will by and by articulate so bewitchingly awkward, as to make the mother laugh and the grandmother repeat, till a new language, called "baby-talk," will prevail in the nursery. It does not know how to use its tiny fingers, and feels proud when it finds it can double them up in the form of a well-clinched fist. For it to stand alone is a feat





which is announced with expressions of joy by the doting mother. Its first tottering walk from one chair to another is celebrated with a gathering of family and friends to witness a repetition of the wonderful performance. And so it proceeds step by step to acquire control of its senses and voluntary movements, and to get used to the world into which it has been ushered, with no previous preparation, but brimful of possibilities. Some people never do get used to it," exclaimed the Doctor with audible mirth, referring, of course, to those who never become apt enough in the employment of their natural powers to rise above or conquer the obstacles which beset them in life. "And then the majority of people never get the nerves of their brains and bodies into such well-ordered action as to avoid running, mentally or physically, into other folks! Instead of revolving in their own orbits, and developing themselves individually in accordance with the peculiar constitution of their own mental and physical machinery, they waste their energies in trying to force others to revolve in precisely the same circuit, in consequence of which the members of the human family go chafing each





other sore through life. The first lesson for a child to learn, after finding out that he must keep his fingers out of the fire, should be to keep his hands out of other people's affairs. Even with this motto prominently before his eyes, there will still occur too many instances in which the orbit of one individual will overlap that of another, bringing the two into more or less inevitable collision. To train all the various powers of the mind and body in a way to act in harmony with other minds and bodies, and yet allow each one to perform his own individual part so as to make the most he can of himself, should be one of the chief studies of the child after he has learned to walk, and to step aside half way in passing his companion on the street!"

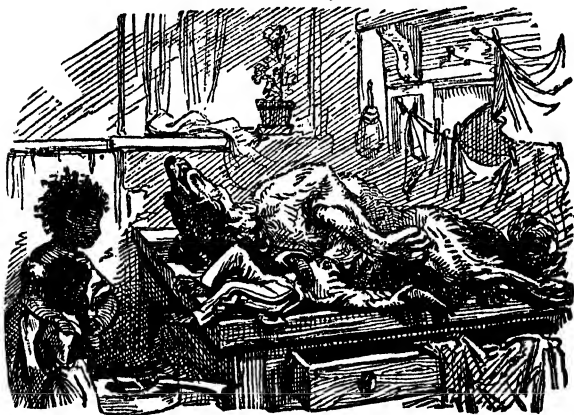
While there was an earnestness in all this, flashes of humor would every now and then steal over the Doctor's countenance while he was speaking. Sammy seemed greatly interested, but the Doctor's good-humor reminded him of his own grief, and of his dear old companion, Sponsie No. 1, and old Blücher, lying dead in the laundry of his Twenty-seventh Street home.

The Doctor noticed the shadow which passed





over Sammy's features, and not quite understanding the cause, changed the subject to that of the coming lecture. Said he—"You will hardly feel like speaking to-night in that large, strange hall, when you are feeling so badly, will you?"



THE SCENE IN THE LAUNDRY.

"Yes—yes, sir," repeated Sammy thoughtfully, scarcely looking up; "and I am seriously thinking of taking the bodies of Sponsie and Blücher to the lecture-room, to illustrate what I shall there endeavor to explain."





"It is not possible!" exclaimed Doctor Hubbs with emphasis and surprise.

"Yes," replied the young lecturer, looking up with an expression of determination lightening up his tearful eyes, and taking possession of the muscles of his lips. "If Professor Powell could will his head to a medical friend in the cause of science, and Professor Agassiz could on his deathbed request his friends to cut open his body to ascertain the cause of his last sickness, I can certainly command the nerve to lay open the skull of Spon-sie and the track of the cerebro-spinal system in Blücher for the purpose of making my lecture plain to my hearers."

"But having the bodies of your dead pets before you will constantly remind you of your bereavement," urged the Doctor; "whereas if the remains of these old companions are not present, you will be likely to become so interested in your subject, that your sorrow may for a time be forgotten."

This was an argument which Sammy did not try to answer, but it did not change his resolution. "I can," he said, evading reply, "make good use





of their brains and nerves before my class, and such others as may be attracted to the hall to-night, and then I can bury their remains just as decently as if they had not served a useful purpose."

"And you think, Sammy, you can do that?" again exclaimed the Doctor, shaking his head and watching the face of the boy, wondering in his own mind if he should ever cease to be surprised at what Sammy seemed ready under all circumstances to undertake.

When the youth looked the Doctor calmly and steadfastly in the eyes and answered firmly, without a quiver of the lip or a nervous motion of the muscles, "Yes, sir, I can," the latter arose from his chair, confident that his pupil could carry out his programme, "for in what instance," asked the left side of his brain of the right hemisphere, "has the boy failed in what he has attempted?"

The Doctor then took to his phaeton, and Sammy went over to his morning duties in the Dispensary. The bulletins of the bill-posters in the middle and upper parts of the city are pretty well plastered over with announcements of Sammy's lecture, and as the hall is capable of holding about



seven hundred people, the young lecturer will have to stand before a larger audience than he has ever addressed before. I will now take leave of you all till to morrow, when I shall endeavor to give you a pretty full report of the incidents of the lecture.





CHAPTER XI.

THE LECTURE—MISS BARKENSTIR PRESENT—
THE VARIOUS SOURCES OF ELECTRICITY—AN
INGENIOUS THEORY ORIGINATED BY SAMMY—
THE FORCES EMPLOYED BY OUR BRAIN—
ANIMAL MAGNETISM—SAMMY'S REPLY TO
YOUNG DIGGLES—THE BURIAL OF SPONSIE
AND BLUCHER—THE CLOSE OF THE VOLUME.



INCOLN HALL was packed with people last evening. The settees were all occupied, and chairs were brought to the aisles. The audience was made up of people of all shades of color; from the lightest blonde to the blackest Ethiopian. The colored element was of course predominant. But who do you suppose came early and secured the front seats? Why.





Mrs. Biddlewicker, Mrs. Millstone, Minnie Biddlewicker, Julia Barkenstir, little Miss Goodlove, accompanied by the young lawyer and the old gentleman, Mr. Goodlove. The latter, by invitation, took a seat on the platform, when the young lecturer, accompanied by Doctor Hubbs, entered. The entrance of Sammy and his preceptor was signalized by such a clapping of hands and stamping of feet as was almost deafening. This applause was initiated by the young people who belonged to the evening class, but all present instantly joined in the complimentary welcome, and none with greater enthusiasm than those occupying the seats in front.

Before ascending the platform, Sammy gracefully passed along the front row, and shook hands with his admirers, who had stood by him at the masked party. Miss Julia Barkenstir held his hand for some moments in close conversation, and although no one could hear much that she said, the sparkle of her magnetic blue eyes gave evidence that she was greatly pleased to meet the one who, while masked, had captivated her young heart. The spell was not yet broken, for while





the paper mask had been removed, she felt that there was still another one created by unreasoning prejudice, behind which was a soul as noble as ever shone through a white cuticle.

Old Mr. Johnson came in very soon after Sammy took his seat. On the platform by this time were Doctor Hubbs, Mr. Johnson, Mr. Goodlove, Young Diggles, and by the side of the latter, Sammy's little sister Esther. With the exception of Esther, all of the Tubbs family were in side-seats facing the platform, where they could conveniently look over the audience, and observe the effects of Sammy's wise sayings. Under the speaker's desk, in a basket which had been brought early by the elder Tubbs, were the brain of Spon-sie Number 1 and the cerebro-spinal system of old Blücher !

Doctor Hubbs felt and plainly exhibited quite as much concern as he did on the occasion of Sammy's first lecture. He greatly feared that his pupil would be embarrassed by the vast concourse of upturned faces, if not overcome by the grief under which he had been suffering all day. These two causes put together he feared would be suffi-





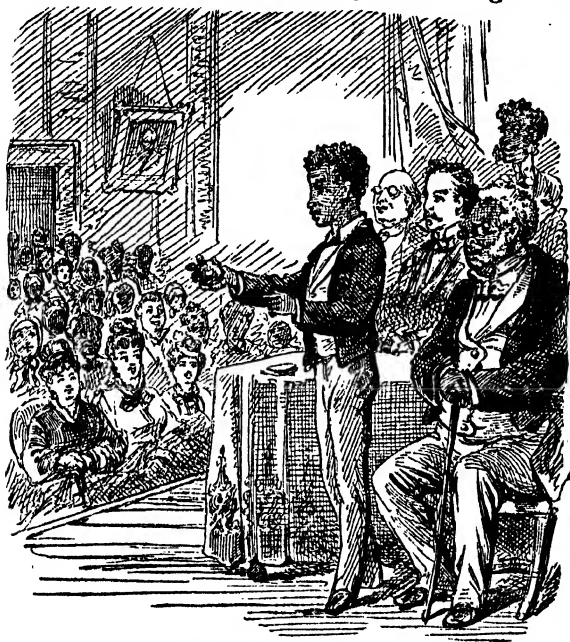
cient to greatly mar the lecture, if they did not utterly break down the speaker.

When the clocks in the neighboring churches had finished striking eight, Doctor Hubbs, only too eager to relieve his suspense, promptly arose and explained the embarrassing circumstances under which Master Sammy would address them, and begged their generous indulgence. The allusion to his dead pets visibly affected the young lecturer, compelling him for a few moments to bury his face in his handkerchief; but when the Doctor in concluding proceeded to introduce him to the audience, he stepped forward with a calmness which surprised everybody.

After a few introductory words, he took from under the desk the brain of Sponsie, and, to please Young Diggles, presented the facts regarding phrenology. From this subject he rapidly passed over physiognomy, sarcognomy, and pathognomy, very much as he had done at the masked party. His front-seat admirers, indeed, began to think that they were only to have the same dish warmed over. But by and by he struck upon a more exhaustive consideration of the brain, cerebro-spinal



system, the vegetative, cranial, and pneumogastric nerves. After describing their origin and



SAMMY EXPLAINING SPONSIE'S BRAIN.

the parts which they controlled or influenced, illustrating his discourse first with Sponsie's brain,





and then with old Blücher's cerebellum⁸⁶ and spine, he proceeded with graceful gestures as follows :

" Here we have a telegraphic system more perfect than the ingenious mind of Professor Morse could have conceived. It is the masterpiece of the GREAT MIND that brought the inventors of our overland and oceanic telegraphs into being ! ' Can the servant be greater than his Master,' or the subject greater than his Maker ?

" Moreover, science reveals the fact that our minds employ about the same agency in communicating with the various members and organs of the body that is used by the telegraphic operator. What we call electricity in some one or more of its various forms is doubtless the stimulus which our brain employs in performing, under the direction of our will, all our voluntary motions, while other nerves, called the involuntary, are busy in conducting to the heart, lungs, stomach, and other organs, the electrical impulses which keep the whole living machinery in action.

" By chemical and mechanical processes we can produce various forces, which seem to be in some way related to those which rend the heavens in a





thunder-storm. For instance, we can produce with one kind of an instrument frictional electricity; with another, aided by certain chemicals, an electrical influence called galvanism; by another, still another kind, electro-magnetism; and by simply heating unequally a bar of bismuth we can produce at least a feeble current of what is called thermo-electricity. You can find out about all these different kinds of electricities by referring to your school philosophies and cyclopædias.

"Each one of these forces has some property peculiar to itself. They are not all precisely alike. Between some of them their effects are widely different; now, when a great naturalist like Buffon informs us 'that the animal combines *all the forces* of Nature; that his individuality is the centre to which everything is referred, a point reflecting the whole universe, *a world in little*,' what are we left to infer, unless all of the above-named forces, with perhaps some others, are employed in our nervous telegraphic systems in carrying on the wonderful processes of living, moving, feeling, and thinking?"

Sammy had been several times interrupted by



applause, but at this point it was uproarious and continuous. The restless and nervous face which Dr. Hubbs had brought to the hall with him was now lighted up with an expression of relief and delight which was shared by old Mr. Johnson, Mr. Goodlove, and by the ladies and their escort on the front seats.



OLD MR. TUBBS DELIVERING
A MESSAGE ON TIPTOE.

The father and mother and other relatives of the young lecturer made no effort to conceal their pride, and the old man Tubbs desired so much to impress the audience with the fact that he had some personal connection with the performance, that he would every now and then step on tiptoe to say a word to either Dr. Hubbs or Mr. Johnson; messages which could have had no great importance, inasmuch as a smile or a nod of the head seemed in every instance quite sufficient for a satisfactory reply.





"It is my belief," resumed the lecturer at the conclusion of the applause, and while setting down a goblet, from which he had taken a sip of water, "that our ability to judge of the quality of things by the sense of touch is in a great measure due to thermo-electricity. In an article which I recently read in Prof. R. A. Gunn's Medical Mirror, the writer undertook to show the plausibility of referring the production of all our nervous forces to a sort of thermo-electrical battery made up of external membranes which are kept at a lower temperature than those in the central portions of our bodies. He considered only one assumption necessary, and that was not an improbable one, it being that 'a thermo-electrical current is capable of being generated between soft tissues of different composition and structure.' But unfortunately the writer claimed too much. One of his critics answered him in language as follows :

"The theory is advocated by some, and with considerable plausibility, that nerve-force is generated by thermo-electricity, produced by the difference in temperature of the inside and outside of the body. . On the other hand, it is argued by





those adverse to this theory, that the experiments of men exposed for a long time to a temperature equaling the blood-heat appear not to favor such a theory, because, notwithstanding such a temperature is not promotive of health or comfort, the simple fact that man can live in an atmosphere of which the temperature equals that of the interior of the body, is regarded as proof that nerve-force does not depend on this, but rather on the consumption of food, absorption of oxygen by the act of respiration, and the continual repairs of all the tissues, nervous and muscular, by the materials contained in the blood.'

"This critic," resumed the lecturer, "is without doubt correct. A volume in the library of my generous preceptor [applause] entitled 'Medical Common Sense,' published nearly twenty years ago, explained a variety of physical processes which were sufficient to supply the body with the requisite electrical forces for running its complicated telegraphic system; and the experiments of scientists have not only shown them to be true, but have stumbled upon a variety of other ones. Becquerel tells us that 'even the various cells,





tubes, tissues, globules, etc, with the fluids which moisten them, are so arranged in the body that they are constantly evolving electricity.' The American Cyclopædia informs us that the researches of Matteucci, Du Bois-Raymond, Donne, Baxter, Brown-Séguard, Eckard, and others, have established beyond doubt that the production of electricity is constantly going on in all the tissues of the living animal body.

"It is not therefore necessary," said the lecturer, looking up from a scrap of paper upon which he had noted the above quotations, "to go to the sources of thermo-electricity in the human body, to find the forces which work its machinery. But it may not be assuming too much to say that quite likely thermo-electricity greatly aids us in our sense of touch. Everything, scientists tell us, possesses electricity of some kind (even vegetation is found to generate and throw it off), and it is doubtless to this fact, in part, that we are indebted for our ability to tell what many substances are by the sense of feeling when our eyes are closed. But it is also evident that everything has its own peculiar temperature. Delicate shades





of difference may not always be detected by a thermometer. Our instrument-makers have not yet made telescopes that will show to us what kind of people inhabit the planets ; nor have they given us microscopes that have the power to reveal the smallest living specks of earth. Neither have they as yet given us a thermometer which can be supposed to possess the power of revealing all the fractional degrees of heat and cold. Now, then, we have sensitive nerves terminating outwardly in our skin, and inwardly, directly or indirectly, in our brain. Our skin is literally filled with these terminating fibres. When we touch an article or thing which is colder than the internal temperature, may it not be in compliance with the law by which thermo-electricity is generated, that a succession of sparks of this kind of electricity, fly to the brain, informing it of the fact? and when we touch something warmer than the internal temperature, is it not possible that the brain becomes conscious of the fact, by the production of a succession of sparks of thermo-electricity, which leave that organ and pass into the medium or thing? And, again, may it not be the radiation





of thermo-electricity from our bodies in hot weather, or in warm baths, which, in part at least, causes our sense of lassitude? Finally, may it not be this peculiar form of electricity which greatly aids us in distinguishing between marble and wood; crockery and glass; cloth and paper; and between any one substance and another by the sense of touch? Each article, doubtless, has its own temperature, which our delicate thermo-electrical battery can detect, whether the thermometer can or not. Bear in mind that when our hands are long in contact with one thing, the difference which our senses first perceive steadily becomes less noticeable, and, further, that an excess of heat or cold, as when we have had our hands in hot water or exposed to wintry air, causes what we call a numbness, which disqualifies us from distinguishing the qualities of things by the sense of feeling. Remember that it is by years of practice, from babyhood up, that we learn to know what many things are by our fingers or hands, without the aid of our eyes; then reflect, that if we are dependent upon thermo-electricity for this power, our nerves of touch cannot prove reliable when





they are raised to a much warmer or lowered to a much colder temperature than that to which we are accustomed."

During the delivery of this philosophical matter, several attempts were made to get up applause, which failed, because those who understood it were so deeply interested that they did not wish to lose a word, and those who did not comprehend it saw nothing in it to applaud. It was mainly from Sammy's class that the slight outburst occurred, for its members had been under his instruction long enough to feel certain that he was acquitting himself with credit, even if they did not comprehend all that he was saying. But when the young lecturer stopped to take a glass of water, a round of applause was started at the front seat, which rapidly extended to every part of the hall, while the gentlemen on the platform leaned towards each other and exchanged the warmest congratulations.

"It is my belief," said the lecturer, on resuming, "that all forms of electricity exist in the human body, and that some of them combine in producing what we call nervous force, so that the





nervous current may not have the characteristic properties of any one of them. Animal magnetism may be the product of two or more of these different forms."

Here Young Diggles interrupted the speaker by



YOUNG DIGGLES WISHES TO BE INFORMED.

rising and asking with a voice somewhat tremulous with embarrassment :

"Dr. Tubbs, sar, habn't Mister Secord-Brown dealt a death-blow to anibal magnertism?"

"I think not," replied Master Sammy, stepping





gracefully to one side of his desk, so that he could face his questioner without turning his back upon more than half of his audience. "In one of his lectures, Dr. Brown-Séquard asked the question, 'Can the nervous force spring out of the nervous system to produce some action?' To which he replied 'that there were no facts to prove it.' And he added, 'that if he were right, it was a death-blow to animal magnetism.' But it seems to me that he furnished the necessary facts to show that he was not right, in a lecture delivered in less than ten days thereafter. He said that Catlin, who traveled in the West, and wrote two volumes on the Indians, stated that when the calves of the buffalo were caught, and the air from the lungs of a man forcibly breathed into their nostrils, they became so fascinated with the influence, that they would run after the horse of the hunter and follow him for five or six miles. He gave us the same authority for saying that a wild horse that has been lassoed and treated in a similar manner will follow his captor anywhere and act perfectly tame.

"Now, I am sure," said the lecturer, with a bright smile lighting up his face as he turned





squarely to the audience, "no believer in animal magnetism could give two stronger facts than these in support of their favorite doctrine. Furthermore, it is not to be supposed that such men as Cuvier, La Place, Hufeland, Agassiz, Dr. Herbert Mayo, Sir William Hamilton, Dr. Carpenter, and Prof. Edward Hitchcock would have been the supporters of the claims of Mesmer and his followers, had not facts to support them been presented clearly to their minds. In all our intercourse with mankind every day of our lives, we have evidence of the phenomena of animal magnetism. We communicate it with our hands; we exhale it with our breath; we flash it from our eyes; and to an extent which influences those with whom we associate without the aid of an audible word from our lips."

This reply to Young Diggles was greeted with rapturous applause, during which the speaker bowed to his audience and took his seat.

Doctor Hubbs, old Mr. Johnson, and Mr. Goodlove successively followed in a few remarks expressive of the interest they had taken in the lecture, the Doctor remarking that all the young man had said of thermo-electricity and animal magnetism





was as new to him as it was to any one in the audience. This elicited another round of applause, for it was pretty generally suspected that Sammy was doing little more than reciting something which his preceptor had prepared for the occasion. The first doubt on this point was raised in the minds of the wiser ones when the young lecturer replied to Young Diggles. This, they whispered among themselves, could hardly have been arranged beforehand, although some were disposed to think so. All questions of this kind were set at rest by the voluntary statement of Doctor Hubbs himself. It was nearly eleven o'clock before the exercises closed. The hall having been filled uncomfortably, more than seven hundred persons must have been present, and all went away greatly pleased with what they had heard.

Now I trust my young readers have been interested in the very complete report I have given of what occurred at the lecture. No important points have been omitted from the details of the lecture itself, excepting those bearing upon subjects which have been substantially presented in previous pages. Nor have I used terms with which you should not





be familiar, if you have read all that has gone before. If any one of the chapters or volumes of this series contains anything locked up from the youthful understanding, the key to it will be found in the chapter or volume which precedes it. So you have only to follow the narrative, without skipping to the more interesting points, to fully comprehend the scientific as well as the most amusing portions of this story.

And now, my young readers, our fourth volume is so full it will be necessary to close it with this chapter, and I am glad to be able to give to you in the closing pages of a book devoted to the brain and nerves such a grand lecture from Sammy upon the forces which are employed in performing the various wonderful processes and motions of your singularly constituted bodies. It is only natural curiosity which leads us, when we see some curious machinery, to ask how it works.

When, if ever, I shall report to you more lectures by Sammy, or tell you more about the remarkable achievements of this precocious lad, time must determine. I cannot very well continue a story about "SAMMY THE BOY DOCTOR, AND SPONSIA





THE TROUBLESOME MONKEY" when Sponsie Number 1 is not only dead, but dissected, and his companion, Sponsie Number 2, is a deserting soldier. It would be like asking you to an entertainment of strawberries and cream when I have no cream to set before you. If Sponsie Number 2 should ever recover from his fright and return to the scenes which he has stained with the blood of his comrades, I could reopen my series, and have the title it bears correspond with the narrative.

In closing I will simply present a few interesting facts : Miss Barkenstir is more than ever fascinated with Sammy ; Minnie and her friends think him a prodigy ; Mr. Goodlove and his daughter pronounce the treatment he received at the masked party cruel, if not criminal ; old Mr. Johnson enthusiastically declares to all of his friends that Sammy shall not need money for his further advancement, and Doctor Hubbs has told his pupil that he shall be relieved of all household drudgery, if he wishes to give more time to study. Doctor Winkles knew of the lecture by the bills he saw posted about the streets, but was unable to attend in consequence of an unexpected professional call ; Sammy was not





sorry ; the backwoodsman's widow never returned for Sponsie Number 2, and nobody knows how the little fellow escaped from her on the former visit. The remains of Sponsie Number 1 and of old Blücher have been carefully deposited by Sammy and Esther beneath the very spot where the kennel stood so long, and old Mr. Johnson, in his enthusiastic admiration of the young master of these unfortunate pets, has caused a neat marble slab with their names engraved thereon to be put in the place of the flagging-stone which had for years lain there.





PART FIFTH.



THE GYMNAST TUBBS.



CHAPTER I.

THE GYMNAST TUBBS.



AFTER a lapse of several months, I am peeping through crevices for you, my young readers, like a comrade in the play of hide-and-seek. The little deserter has been caught, and it is therefore possible for me to resume my narrative. But before speaking of the surviving Sponsie, who shall now succeed to the name of the first, without the additional

designation of "Number 2," some information about Sammy comes properly in order.

It will be remembered that old Mr. Johnson and Doctor Hubbs were so greatly elated with the lecture at Lincoln Hall, that the former said Sammy should have all requisite means, and the latter that he should have all the necessary time to obtain a thorough education.

In less than a week from that very evening a





person was found to do the work which had devolved upon Sammy since the marriage of Biddy. Guess, if you can, who that person was? You give it up? Well, it was none other than Biddy McMicken herself. Poor Biddy! her marriage to the tailor did not result well. "Mac," as she called him, was more wedded to liquor and cigars than he was to his neat little wife, and his abuse of Biddy was so dreadful that she sought service at one of the hotels. The Doctor had not mistrusted what had happened to destroy the girl's domestic peace, till, in looking for a trusty servant, he was surprised to meet the one who had been so long associated with Bridget.

The first plan proposed by Sammy's preceptor and old Mr. Johnson was to send the precocious boy to some high school or college, if possible. But it was feared that he would hardly have the necessary physical strength to bear the strain of college life, without some preparatory exercise to develop his muscular system.

"The first step," said Doctor Hubbs, "to take to develop a good specimen of a man or woman is to see that we have a perfect vegetable; the next, that we have a well-formed animal; from these beginnings we can develop, if the seed be of the right quality, moral and intellectual character."

Old Mr. Johnson, raising his spectacles above his eyes, and resting them upon his forehead,





THE TROUBLESOME MONKEY

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looked rather puzzled with this odd remark, upon which the Doctor proceeded to explain himself as follows:

“At a recent session of the American Science Association, Doctor Lambert reminded us that the first processes in the formation of the human being are purely vegetable; then animal tissues are formed and the characteristics of animal life exhibited; finally, intellection. We all of us continue to carry with us through life our vegetative character in our vegetative system. Hence it is not an exaggeration of the truth to say that man is a vegetable as well as an animal, and, under proper culture, an intellectual, as well as an animal, being.” (My readers will remember that the vegetative system has been fully explained in Vol. III.)

Old Mr. Johnson laughingly remarked that “although the good book, sir, tells us that all flesh is grass, sir, I really never thought, sir, we could in any sense be called a vegetable, sir.” And by this time the whole frame of the speaker shook with mirth as he mentally classed his own species with potatoes, onions, cabbages, and pumpkins.

Doctor Hubbs replied, quoting from Doctor Lambert, “that that which is animal is merely substance or tissue overlaid, as it were, upon the vegetable tissue, and capable, in accordance with its constitution, of exhibiting several different properties, or phenomena, or powers, according to its





constitution and organization, to wit, sensation, emotion, intellection, and volition ; for which nervous tissue is essential. This is evolvable from the secretory tissues, as we see in the egg,' and the secretory tissues are just what are common to both vegetable and animal life."



OUR COUSINS IN THE VEGETABLE WORLD.

I will not weary the reader with a complete report of a conversation which would be better understood at the end than at the beginning of this volume. It was conceded, however, by both gentlemen, after this little discussion, that Sammy was a perfect vegetable, for his vegetative system was





doing its work with the utmost regularity. He ate and he drank, and as the substances and fluids passed along his alimentary canal all the nutritious matters were taken up by the absorbents, while the innutritious and useless passed on to the various reservoirs of excrementitious matters. Now, concluded they, we must make of the boy a perfect animal; and to do this Mr. Johnson proposed that he should have gymnastic training.

Although I have referred in the first volume to gymnasiums, perhaps it would be well for my present purpose to explain, for the benefit of those who do not know, more fully what these institutions are. They originated, it is supposed, among the Greeks, and the Greek term from which the word is derived means *naked*. Among the ancient Greeks the youth were encouraged to throw off all clothing, so as to give the muscles unfettered action, and contend for prizes in boxing, wrestling, quoit-throwing, and chariot-racing. The great Grecian philosophers Plato and Aristotle, of whom you have all heard, thought that no republic could be considered perfect in which the development of the muscular systems of their youth by gymnastic exercises was neglected.

Among the ancient Spartans, children were taken at the early age of seven years, without regard to sex, and put through a course of gymnastic training and no woman could be married until she pub-



licly exhibited her proficiency in physical exercise. The Spartan lover was evidently looking for a perfect figure and graceful muscles, rather than for an armful of clothes which could be bought of the tradesman.

It is doubtless to these practices among the



SPECIMEN OF ANCIENT SCULPTURE. [ANTINOUS.]

Greeks, the Spartans, and I may add the Athenians, that we owe the perfect models in sculpture which were chiseled in marble by the sculptors of those early days, and which have been handed down through successive generations to where we find them in the Museums of Europe. At almost any picture-store we see photographs of them, and many wonder where the sculptors obtained the

natural models for these remarkable works of art. To my mind nothing can be more easily explained. Their gymnastic exercises developed beautiful bodies; and as they were conducted in public, each gymnast prided himself upon his physical formation rather than upon the cut and quality of his garments, as we do nowadays.





Nevertheless, we read that there were prudes in those early times who thought the body was impure, and that only the immortal part of the human being should be at all regarded. This sentiment, which originated among the pagans before the Christian era, was adopted by the early Romish Christians, notwithstanding the fact that they had nothing whatever to support it in the teachings of Jesus. Many of the Christians of the fourth century carried this sentiment so far that they would wash neither their bodies nor their clothing, but went about vitiating the atmosphere with their personal filth. Some were so extremely zealous in despising the flesh that they encouraged the formation of ugly sores upon their bodies, and



SPECIMEN OF ANCIENT SCULPTURE. [DISCOBOLUS.]

even gave care to the worms that burrowed in them! This sentiment, which in more modern times was mistakenly named asceticism, became so prevalent that gymnasiums ceased to exist during what is called the Middle Ages, and one of the Christian





Emperors issued a decree forbidding the sexes from bathing together, as had been their custom. In art, it became the ambition of the sculptor and painter to reproduce in marble and on canvas faces of incomparable beauty ; but when giving the whole or any part of the body it was well concealed



A GENTLEMAN'S COSTUME FOR
MUSICAL GYMNASTICS.

in the folds of drapery. And this rule in art is pretty generally observed in our day, for the Reformation did not take all the nonsense out of enlightened Christianity. Only recently a dealer in pictures and statuary was arrested for exposing in his window for sale a statuette of Narcissus, a beautiful specimen of naked art, representing a youth with the posture and expression of surprise and admiration when for the first time he beheld a reflection of his own figure in a spring !

Gymnasiums, as conducted by the Grecians, have never been revived. Those in which the exercises are conducted in costumes which permit tolerable play of the muscular system have been introduced into





Prussia within the last hundred years. From Prussia they have extended into all parts of Europe and to the United States. Within a few years musical gymnastics, devised for the benefit of both gentlemen and ladies, have been pretty extensively taught in the principal towns in this country, the costume for the former being pants

of usual pattern and a loose jacket, and for the latter something quite resembling what is called the Bloomer-costume. In our gymnasiums expressly for gentlemen, tights, with simply a trunk of heavier material, such as is represented in the cut at the beginning of the seventh chapter, are worn, a costume which has long been in vogue among the riders, jugglers, and acrobats of



A LADY'S COSTUME FOR MUSICAL GYMNASTICS.

the travelling circus. The elasticity of the material entering into this kind of dress enables the modern gymnast to have a pretty free use of his muscles and an opportunity to display to advantage the beauty of form which his exercises are sure to impart. If a dress of similar kind, with as few modi-





fications as the prejudices of the times would allow, were to be adopted by women who practise gymnastic exercises, and then if these exercises were generally encouraged among our wives and daughters, there would soon arise among them such a spirit of emulation in the development of physical beauty that pads, plumpers, and other strange devices of the dress-maker for giving attractive proportion to the present neglected physique of the modern girl would find their way into the paper-mills, and come back to them printed over with satires upon such ridiculous substitutes for natural development. The fact that these queer things are manufactured and sold is evidence in itself of the great defect which now exists in the physical training of women.

With these explanations regarding gymnastic exercises and the costume suited to them, I will no longer digress from my narrative.

As previously remarked, Mr. Johnson proposed that Sammy should have a thorough gymnastic training to prepare him for entering upon a college course in some medical institution. But it was found on inquiry that a young colored man would hardly be accepted at some of the established institutions. "It would give offence to many young men belonging to our first families, you know." Some of the more liberal institutions might be willing to receive him, but then arose the question





whether he might not be treated, by some at least, with sufficient neglect to wound the sensitive nature of our progressive youth.

These facts and considerations again opened the well-filled purse of Sammy's old friend. Mr. Johnson possessed, not far from where the Tubbs family lived, a large six-story brick building in which colored mechanics of small means worked. Some had turning-lathes; others manufactured paper and wooden boxes; still others made small-wares of various kinds for the market. Without any consultation with Sammy the old man caused the upper floor of this building, which was about twenty feet in width by over fifty feet in length, to be fitted up with horizontal and parallel bars, trapezes, spring-boards, and every appliance to be found in a first-class gymnasium. He then hired a competent gymnastic teacher to give Sammy private lessons. Before letting either the Doctor or the boy know what he had done he managed to get Sammy's measure; and on the evening appointed for the first lesson, Doctor Hubbs and his pupil, supposing that Mr. Johnson was taking them to the sick-room of some colored family, were conducted upstairs and ushered into this newly finished apartment, filled with the fragrance of new wood. Sammy was so overwhelmed with pleasure and surprise he could hardly get into his tights; perhaps he would have had difficulty in putting them on even if he had



not been thus agitated, for they were new things to him.

I will give here a picture of the proud-looking boy in his gymnasium suit, and if you wish to see the advantages of systematic exercise, compare his figure as herein presented with the fine proportions of our gymnast in the frontispiece, for the latter is copied from a photograph taken after Sammy had had six months' training under his gymnastic tutor.



SAMMY'S FIRST APPEARANCE IN
THE COSTUME OF A GYMNAST.

Again I will return to my narrative. Doctor Hubbs was almost as much overcome with emotion as Sammy on looking through the new gymnasium. Nor could he leave the place, although in haste to go elsewhere, till he saw the boy go through a few of the exercises with the pulleys, Indian-clubs, dumbbells, etc., under the direction of his teacher. After making one professional call he returned within an hour accompanied by Mrs. Hubbs. for the purpose of showing her what the wealthy Mr.






Johnson had done for his pet Sammy. After climbing five flights of stairs—a fatiguing journey for female muscle, as presently trained and obstructed by the prevailing style of dress—Mrs. Hubbs for the first time made the acquaintance of the numerous Tubbs family, for nearly all of them



DEDICATING THE NEW GYMNASIUM.

were there. After initiating Sammy and showing the Doctor what had been done, Mr. Johnson, it seems, had proceeded to surprise the Tubbs family, and a more jolly crowd than they could hardly have been found anywhere. Esther was swinging





herself from ring to ring around the room. A brother was trying to see how high he could jump by the aid of the spring-board. Old Father Tubbs was lifting some of the heavy weights. Old Mother Tubbs was hard at work at the pulleys, with the muscles she had developed in the laundry. A niece of the elder and cousin of the younger Tubbs had climbed to a trapeze, and was suspending herself at a dangerous height by her hands. All were in high glee. The utter unfitness of all of the costumes, excepting the one which Sammy had on, for exercises of this kind, was apparent at a glance. If prudes would not appear in the parlor in gymnastic dress, it would be no less immodest for them to wear their usual apparel in the exercises of the gymnasium. This fact alone suggests the necessity of a suitable costume for such exercises, and in deviating from that which is suitable for the drawing-room, it would be well not to stop short of one which would give easy action to the muscles, and at the same time display for purposes of emulation and encouragement the splendid forms which such exercises inevitably mould from scrawny, untrained bodies.

The unexpected appearance of Doctor and Mrs. Hubbs suddenly put a stop to the exercises of most of the Tubbs family. Esther, however, was on her flight around the room, swinging herself from ring to ring with her back to the door as it





opened, and the daring girl on the trapeze did not comprehend the situation for several moments. But in a little while all the machinery and appliances of the place were at rest, and Mr. Johnson, after making Mrs. Hubbs acquainted with the Tubbs family, showed her all about the place, explaining his future designs, which were nothing less than providing a gymnasium for the colored people of the city, with the precocious Sammy for a teacher after he should have passed through a course of thorough instruction. It is in consequence of these generous designs and the training which Sammy subsequently received that I am able to introduce my young readers to the gymnast Tubbs.





CHAPTER II.

THE SURVIVING SPONSIE—HOW HE WAS BADLY WOUNDED — HOW CAUGHT BY THE ORGAN-WOMAN—SPHINCTER MUSCLES EXPLAINED — SPONSIE OUTRAGEOUSLY ABUSED — A LESSON FOR MOTHERS.



NOW, having explained how Sammy came to be a gymnast, I will tell you something about the surviving Sponsie. It has already been related that the little deserter had been caught. So he was, but not by any member of the Tubbs family, or by any friend of the Doctor or his pupil. I have succeeded, by much painstaking, in learning the history of his capture through other sources, and it is briefly as follows:

When those cruel guns went off killing Sponsie Number 1 and mortally wounding old Blücher, the bullet which pierced the neck of the latter first grazed the bladder and then passed through the





lower part of the rectum of the surviving Sponsie. Wounded and frightened, he frantically mounted the fence, betook himself to the street and ran he knew not whither. When he came to collect his scattered senses and take what the merchant would call an inventory of what was left of his mental faculties and physical organs, he came to an understanding of his true condition, and he further found that he was stowed away in a wagon with four scattered youngsters of various ages not exceeding five years, drawn, or rather pushed along, by an Italian woman, who had managed to fix up a vehicle which would carry both instrumental and "chinese music." A hand-organ formed a sort of headboard to this portable crib, which was rolled about for the purpose of producing both symphony and sympathy in the ears and hearts of the passing crowds.

Music tickling all those three thousand nerve-fibres of the ear, and the unhappy-looking load of half-starved children appealing to the hundred thousand nerve-fibres of the benevolent eye, were a combination well calculated to relax the sphincter muscles of people's purses, and now the woman thought she had added by the capture of the monkey something to act upon the mirthful sides of those who had no music in their souls or compassion in their breasts.

If any terms are employed which my juvenile readers do not comprehend, they should turn to



their dictionaries. I have incidentally used one phrase which I will here stop to explain.

Sphincter muscles are those which exist in various parts of the body for the purpose of closing the orifices of some of its tubes. By way of illustration I will remind you that you have, located in



SPONSIE'S CAPTOR.

the lower front part of the trunk of your body, inside, what is called a bladder, whose office it is to receive all those waste fluids of the body which do not pass off by exhalation by the lungs or by perspiration through the skin. The neck or outer end of this bladder is provided with muscles which contract or draw together its orifice so as to retain its fluids till the organ becomes filled, and, further,

till you can find a convenient place and opportunity to empty this vessel. These muscles form what is called the sphincter vesicæ. When you feel a desire to empty this bladder, and you are so placed that you can conveniently do so, the action of your will sets in motion the muscular fibres which encircle this





organ in a checkered way, causing them to contract. Then you bring to bear upon the upper and front walls of the bladder another pressure by contracting the muscles of the abdomen or belly. This combined pressure upon the contents of the bladder from the contraction of its own muscular fibres, and of those of the abdomen, overcomes the resisting-power of the sphincter vesicæ, and throws it open by force so that they escape.

Again there is a large intestine in your body called the colon, terminating in what is called the rectum, and the outer orifice of the latter is known as the anus, and this has some circular muscles forming what is called the sphincter-ani. The colon and



INSTRUMENTAL AND CHIN
MUSIC.

rectum receive from the stomach and smaller intestines all the chips and useless materials which have not been taken up in the process of digestion and absorption, and also all the waste substances of the body which do not pass off in what is



called a soluble or fluid form, and the sphincter-ani enables the colon and rectum to retain these more substantial accumulations till you may find time and place to conveniently cast them out. When you are ready to attend to this function, you draw in a full breath which distends the lungs and you close the sphincter muscle of the breathing passages to prevent the escape of the air from them. This action causes the lungs to press upon the organs below them till the pressure is communicated to the colon and rectum. With this effort you again contract the abdominal muscles so as to produce pressure in front of the intestines, and it is also thought that there is a contractile muscular motion, called peristaltic action, excited in the colon and rectum when the will has set the lungs and abdominal muscles at work. With this combined pressure downward from the lungs, from the front backward, by the contraction of the muscles of the belly, and the peristaltic action of the colon and rectum, the sphincter-ani is forced open, and the waste substances which have been collecting above it are passed off.

So you see that facts in physiology led me to make use of the strange phrase "relax the sphincter muscles of people's purses." The term *purse* is often applied in the English language to any contrivance for carrying money about the person, although the original invention for this purpose





consisted of a leathern bag with strings for closing the open end, somewhat in imitation of sphincter muscles; and an invention constructed of silk-network with a rubber ring at the orifice for closing it, at one time in use, was almost an exact imitation, except in the character of its material, of a bladder with its sphincter muscles.

But we will return to our story: A grand combination, thought the Italian woman, for extracting dimes and pennies from good people's pockets, as she secured Sponsie in the wagon by tying a short cord about his neck and fastening the other end to a projecting screw in the lower part of the organ. A well-organized troop for exciting the sphincter muscles of benevolent people's money-bags, as a physiologist would have expressed it.

To go back a little, the tune the woman was playing at the moment when Sponsie was passing came to an abrupt close with a peculiar quack as she sprang to catch the little foundling, and for a moment there was quite a combat between the two, the monkey retaliating with his teeth and claws upon the face and hands of his desperate and persevering captor. But the superior strength of the woman, who had developed her muscles by drawing her load and turning the crank of her organ, soon triumphed, and the wounded and frightened soldier surrendered. The surrender



having been unconditional, his lot became a terribly hard one. The cruel wound had paralyzed



THE CONTEST AND THE SURRENDER.

both the sphincter-vesicæ and sphincter-ani, so that Sponsie had no control of the reservoirs of his waste matters. The ignorant dame, without stop-





ping to investigate causes, whipped him soundly every thirty minutes in the day for his uncleanly habits, just as many an unwise mother has whipped her children for similar offences, resulting from some disease of the reservoirs or the sphincter muscles which guarded their orifices.

In this connection I wish to say that it is simply a wonder why these affections of the bladder and rectum do not more often exist, when children are taught that the performance of the function of discharging the waste matters is one of which to be ashamed. The persistent retention of them after the reservoirs are filled not only injures the sphincter muscles guarding their outlets, but greatly deranges the reservoirs themselves. By such protracted retention, the bladder becomes weakened and rendered susceptible to irritations and inflammations; its sphincter is made the seat of various derangements which may manifest themselves in permanent relaxations or spasmodic contractions and relaxations. The rectum is rendered liable to similar permanent derangements, and the waste substances are caused by such retentions to assume a dryness and hardness which makes their evacuation difficult and often painful. The false teachings in families which lead to these results should be discontinued, and the child should be taught that the "out-house" or "water-closet" is as respectable a place to visit for the





purpose of unloading the waste matters, as the table is for taking in fresh supplies of building-material. Everybody knows that everybody has to attend to these necessary functions, and no one should be ashamed of being seen entering a place set apart for their performance. And furthermore, such places should be multiplied in city and country for both sexes, and not alone for men and boys. Little and grown-up girls cannot have attractive faces, clear skins, and sweet breath unless these functions are regularly performed. When the waste matters of the rectum and bladder are unduly retained, nature disposes of as many of them as she can, in her kind providence, through the effluvia of the skin and the exhalations of the lungs; so that in reality the sweetest people we meet with in our intercourse with the human family, whether male or female, are those who perform with the greatest regularity the functions of which I am speaking; while those who go about with horrid breath and offensive effluvia are just those who are too prudish or too greatly diseased in the organs of excretion to attend regularly to the natural unloading of their waste matters. Bear constantly in mind that it is proper to take food and drink into the body, for it is by these means that we keep up the rebuilding processes in our bones, muscles, nerves, glands, and flesh; and then that it is equally proper, after the villi have





taken up the nutritive particles of the food, to go to some convenient place and dispose of that which could not be so appropriated, together with the material which is constantly dying in the ever-changing tissues of the body.

In the case of poor Sponsie, his stupid captor never examined him to find out the true cause of his delinquencies, notwithstanding the fact that he was dripping with blood when captured. Possibly she imagined that he had escaped from some cage; and that in doing so he had inflicted upon himself a slight abrasion or flesh-wound. While Sponsie continued to be uncleanly, the woman did not take him out with the load of babies, but left him at home to be disciplined by her husband, who was too crippled to work. He,



SPONSIE UNHAPPY.

too, whipped poor Sponsie for his offences a dozen or twenty times a day. Gradually the monkey's wounds began to heal, and as they did so he obtained better control of the affected organs. When they were wholly healed, his lost powers were com-





pletely restored, so that his natural functions were performed with their former regularity. The woman and her crippled husband congratulated each other upon the good effects of the whippings that were administered as poor Sponsie grew better, and to this day you could not make them believe that anything, except prompt punishment for each offence reformed the obstinate animal!

Parents have doubtless been led to believe that they have overcome the supposed carelessness of children in respect to these matters, by what are called in plain Saxon "good spankings." But I will venture to say that in nearly every instance where this treatment has been successful, the desired results have been effected by physical rather than by moral causes. In other words, the violent slappings and jostlings in the region where these sphincter muscles are located, have diverted such unusual supplies of blood to them as to change their condition. But the remedy is a cruel and unnecessary one, when other and less violent means may be successfully employed. The child feels outraged, and consequently, if physically benefited, is injured in his moral nature.

Sponsie's reform, as imagined by his cruel captor, was considered a great triumph of discipline, and as soon as he had passed three days of good behavior he became one of the traveling troupe. His soldier cap and clothes made a suffi-





ciently attractive outfit, and he was taught while going through with his home discipline how to beg for pennies by extending his little soldier-cap, and giving a laughably jerking bow when any were deposited therein.

Sponsie's labors being professional, rather than mechanical, the eight-hour law did not prescribe any limits to his laborious day's work, which began about nine in the morning and lasted till eleven or twelve at night ; for when the little folks who took an interest in a show of this description had retired, the woman would visit the beer saloons. Sponsie was allowed to wink as often as he pleased all those long hours, but sleep for his eyelids and rest for his tired body were reserved for the last half of the night. Poor Sponsie !





CHAPTER III.

A FEW WORDS TOUCHING HAND-ORGANS—THE GYMNASIUM TURNED INTO A LECTURE-ROOM FOR THE SUMMER—THE FIRST LECTURE—THE ELIMINATING ORGANS—THE SECRET ABOUT JULIA BARKENSTIR—SHE GOES TO THE HOUSE WARMING AT FATHER TUBBS'.



S may be inferred from our opening chapters, while Sammy was being taught gymnastic movements in the institution founded by the generosity of old Mr. Johnson, Sponsie, poor Sponsie, was being whipped and initiated into the mysteries and miseries of a life but one remove from that of downright beggary! In a city like New York, we have organ-grinders who are as welcome as spring birds. Their instruments are marvels of musical ingenuity and mechanical skill. The enlivening airs which issue from them fall as sweetly upon the nerve-fibres of the ear as do the perfumes of June roses





upon the olfactory nerve-filaments. Then there are all grades of instruments below this class, till you reach those of the size and finish of the box swung across the shoulders of a little bootblack. You pass them upon the street-corners in the hands of vagrants of either sex, and as the crank goes lazily around, discordant and remittent sounds grate upon the ear, like the notes of what is called a broken voice, or the speech of one who has such a cold as to emit from the throat, while talking, a continuous hoarse voice, with now and then screeching, ear-piercing breaks from its labored utterance. The organ owned by Sponsie's new mistress was only a little superior in size and musical quality to the kind last described, but was nevertheless in perfect keeping with the rest of the strange puppet-show on wheels, unless I may except Sponsie's soldier-clothes, which were far better than the filthy rags that scantily enveloped the bodies of the dirty-faced children in the wagon.



MUSIC WHICH HAS CHARMS
FOR THE SAVAGE BREAST.





By the end of three months from the tragedy of Shin-bone Alley and Sammy's début at Lincoln Hall, Sponsie was well-trained in his daily rounds of street beggary, and his progressive master, Sammy, with his usual aptness, had almost attained to what would be called proficiency in the performance of gymnastic feats. Often would Sammy wonder, when lying awake in the silence of midnight, or when unemployed during the day, what had become of the surviving Sponsie, and many inquiries for his discovery were put in circulation by the friends of the young gymnast.

As the warm weather of summer approached, Sammy found that gymnastic exercises were not quite so enjoyable as they had been during the cooler months of expiring winter and opening spring. Old Mr. Johnson, therefore, proposed that everything excepting some of the lighter dumb-bells, Indian clubs, and suspended rings should be cleared away so as to make a lecture-room of the gymnasium during the continuance of the warm season. To this the young gymnast enthusiastically assented, and on the first evening in June Sammy gave his first lecture in this place to a crowded and appreciative audience. Mr. Johnson had obtained permission to take from a large and fashionable hall, which was undergoing repairs, a lot of very pretty and comfortable settees, and with these the gymnasium looked almost as if it had





been constructed especially for a lecture-room. The platform came from the same place, and this, as well as the settees, having a slightly worn appearance, added to the effect, causing spectators to feel as if they were sitting in a hall which had been used to echoing the learning and eloquence of time-honored orators. Sammy announced his text in the following familiar words: "Man is fearfully and wonderfully made."

And wonderfully did the young gymnast and lecturer describe the various organs and functions of the body, omitting none except such as appertain to reproduction, and these he promised to faithfully explain on some future occasion. Time and space forbid the presentation of this excellent lecture in full, but you will be interested, after what I have said in regard to the waste matters of the body and of the sphincter muscles, in that portion of his discourse appertaining to what are called the eliminating organs.

"The eliminating organs and functions," remarked the young man, "are those which separate the waste and dead materials from those which are nutritious and living, and cast them from the body. The lungs eliminate carbonic acid from the circulation every time you expel your breath, and they often carry off other waste matters in the form of vapors. The skin, when it is kept clean, throws off in the form of perspiration, sensible or insensible—or, in



other words, perspiration which is felt, or not felt—from twenty to forty ounces of useless matter daily. It has for the performance of this function over seven millions of pores or orifices. It has sometimes been said that we breathe through



ONE WHO DOES NOT BREATHE
THROUGH THE PORES.

the skin. There are pores for absorption as well as for excretion, and in a measure this is true. But in no case can it be true that we breathe through the pores, or that we throw off from them twenty to forty ounces of waste matter, unless the skin be kept clean with daily baths by the fat and warm-blooded, and with at least semi-weekly scrubbings by those who are lean and bloodless. Do not forget that when the

pores of the skin are obstructed, that about *twenty miles* of perspiratory tubes are so blocked up at their outer orifices as to be unable to do their share in the removal of the effete matters of the system!"

(These facts regarding the skin were new and startling to a majority of the audience, and the

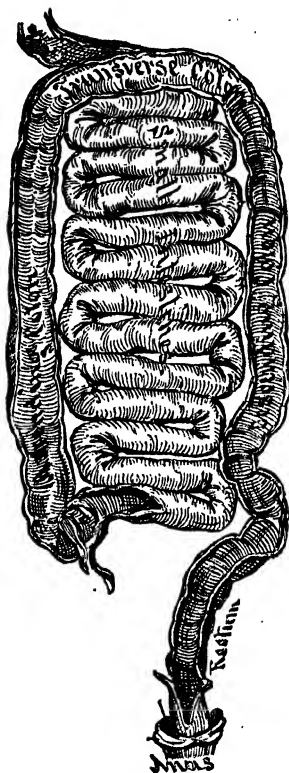




presentation of them in such a clear manner was greeted with applause, in which the party on the front seat enthusiastically joined. Miss Barkenstir and Miss Goodlove had become regular attendants at Sammy's lectures, whether given at his Twenty-seventh Street home or elsewhere, and often they were accompanied by those who were with them on the evening of the lecture at Lincoln Hall. Mr. Goodlove usually came with his daughter, even if he could not remain, and then would call for her near the close of the exercises. Miss Barkenstir often came without an escort, and when thus alone, she always seemed wonderfully pleased to have Sammy act the part of a gallant. Don't whisper this, but our young gymnast and lecturer has accompanied Julia home not less than a dozen times ! Of course, if Sammy had been Mr. Barkenstir's coachman, or his servant, nothing would have been thought of so trivial a matter, even if he did wear a skin many shades darker. It would have been proper for Julia to indulge such a fancy then. Indeed, the fancy would not have been mistrusted. But the case was different ; for, instead of being at this time anybody's servant, Sammy was a gymnast and a lecturer on anatomy, physiology, and hygiene, the last word having reference to the art of preserving health. Therefore, as vulgar prejudice goes, shame on Julia !)

"The inner skin, or mucous membrane," resumed the speaker, "also eliminates useless and





THE INTESTINES.

effete matters. Throughout the entire length of the alimentary canal there are excretory vessels which correspond in a measure to the pores of the skin. While the villi of the small intestines are busy taking up nutritive matter for rebuilding the dying tissues of the body, the excretory vessels are quite as actively at work removing the latter, which are passed along with the waste matters through the small intestines till they reach the reservoir called the colon. I will here show you a large plate of the intestines, so that you may understand better what I am saying and am about to say. You see in it what is named the colon. Now, when you take food, all the hard and indigestible





substances, and all that are not taken up by the villi in their passage through the small intestines, collect in that large intestine marked the colon, where they are held till they are discharged through the rectum by the outer orifice, called the anus. The average quantity of waste thrown off through this channel by an adult is said to be about five ounces per day. As will be seen, the dregs of the food have to take a circuitous route in their passage through the body, and when they have been emptied into the colon they have to ascend on one side, cross over, and descend on the other before they can reach the last receptacle, the rectum. During their last circuitous passage much of their fluid contents is absorbed by the large intestine, and when they are allowed to remain there too long they become dry and hard, causing what is called constipation. In their descent from the stomach they sweep along all the waste matters exuded from the lining of the intestines, and also carry with them such portions of the secretions of the liver, called the bile, as are not absorbed by the intestines for further use. Inasmuch as bile is found to influence the character of the waste matters passing through this channel even in their exit, the liver may properly be classed among the eliminating organs."

(Doctor Hubbs, who occupied the platform with Mr. Johnson, Young Diggles, and Esther, here ap-





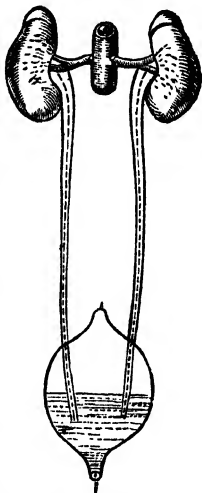
plauded the speaker, by clapping his hands, and it was encouraging to Sammy to find the applause warmly seconded by those on the front seat as well as by the rest of the audience, for he had felt a little embarrassment in presenting the subject so plainly. He had even thought of reserving all allusion to the eliminating organs for a private lecture at some future time. Seeing that his audience was not constituted of prudes, he felt assured to speak with equal plainness of other eliminators.)

"The kidneys," remarked the speaker, "might almost be called the undertakers of the daily dying body. No other organs have so much to do with the removal of the dying tissues. These glands are located on either side of the spine, in the back part of the cavity of the body not far from where the elbows touch when thrown backward and downward. They are of a brownish red color, bean shaped, about four inches in length, two inches in breadth, one inch in thickness, and are so constructed that all waste fluids which do not find an outlet by exhalation from the lungs or skin, or with the more solid matters of the colon, are taken up from the blood by them. The blood in its constant rounds through every part of the body not only gives new building material to the various parts requiring it, but it also collects and washes away the dead atoms of bone, muscle, etc., and conveys them in a liquified form to the





avenues of escape. The kidneys afford excellent channels of exit for these soluble waste matters, because they contain, beside tubes and cells, membranes of such extreme delicacy of texture that the watery portions of the blood pass through them as easily as they would through muslin. As they do so they trickle down through tubes to small reservoirs in the kidneys, and from these they continue to course their way through canals called the ureters to the bladder, which is the receiving reservoir for all the waste fluids taken out of the blood by what are commonly known by the name of the urinary organs."



Here Sammy drew upon a blackboard a diagram representing the organs of which he was speaking, remarking, as he did so, that he would not give the long canal of the male, called the urethra, but figures that **URINARY APPARATUS**, would exhibit the other organs just about as they are in either sex. "The upper organs," he said, "would be readily recognized as the kidneys as they had been described. The canals pointing downward are the ureters, and the large globular





body below may be considered to represent the bladder, partly filled with waste fluids."

Our young lecturer then proceeded to speak of the urethra, or canal leading from the bladder outwardly from the body, and of the sphincter vesicæ as I have already done, and when he concluded his lecture the audience showed its appreciation and good sense by such a storm of applause as had not greeted his ears since his successful début at Lincoln Hall.

Doctor Hubbs dismissed the meeting after some remarks, stating, among other things, that the young gymnast and lecturer had not so much as asked him a question regarding the subject he had presented for their consideration.

The lecture was consequently wholly the product of Master Sammy's well-stored mind. This statement brought another chorus of applause from the delighted audience as they arose and crowded the aisles to depart.

At this juncture Sammy found himself in a dilemma, which, being interpreted, means a perplexing position. He had promised Miss Julia to accompany her if she came that evening without an escort, and his father and mother, who approached him the moment he left the platform, whispered in his ear that they had promised some friends that he would meet them at their house at the close of the lecture !





"You would not like to go around there for a few moments, would you Julia?" inquired Sammy with an emphasis on the first and last three words which left her as free to decline as to accept.

"I have no objections to doing so," replied Julia, with a look of hesitation as if doubting if she would be wanted.

This was misinterpreted by Sammy, who thought she only desired in her kindness of heart to help him out of a perplexity, while she did not really care to join the colored people who were expected to gather in his parents' parlors. So, thinking it would be pleasant for the young lady to have some other white person with her, he prevailed upon Doctor Hubbs to go along with them.

The parlors where Sammy had so often lectured to his class were brightly lighted, and about twenty or thirty people, all colored, awaited the arrival of the young gymnast and lecturer. An expression of perceptible surprise passed over their sable countenances as the Doctor and Miss Julia entered the house at the same time. Nevertheless they seemed to feel flattered with the presence of their distinguished guests. It soon became apparent that the old folks had in their cellar a can of ice-cream with which they purposed to entertain the company. Plates and spoons came rattling into the rooms on a tray in the hands of bright-eyed Esther, and soon after Father Tubbs came puffing up the





THE BOY DOCTOR AND

cellar stairs with the can, which he deposited in the centre of the two rooms where everybody was hospitably invited to help themselves !

Sammy's sense of propriety was painfully shocked at this, but when the jolly old Mr Johnson burst into a fit of uproarious laughter, and the



FATHER TUBBS' WAY OF SERVING ICE-CREAM.

Doctor and Julia spontaneously joined, all acted as if they regarded it as a joke rather than a breach of etiquette on the part of the old white-washer, who really did not know any better. Whether or not anybody mistrusted this to be the case excepting Sammy, it would be difficult to





tell; for every one professed to be pleased, and nearly all rushed to the can to fill their plates excepting the Doctor and Julia, who waited to be helped by the cheery-faced Esther. This sister shared more than any other member of the Tubbs family the native genius and brightness of her smart brother. Placed in the same favorable surroundings she would doubtless have developed as much character as Sammy had been found to possess.

There were several educated colored people present who conversed very intelligently upon current topics, and every now and then there would be an outburst of hearty laughter over some genuine joke from Mr. Johnson. Finally Sammy made a graceful little speech, after which he begged that they would excuse his party on account of the lateness of the hour.

Assent was not readily given, especially by Mother Tubbs, who had arranged for a little music and dancing; but it was half-past ten o'clock, and, taking her aside, he whispered in her ear that it would not do to detain Julia any longer. The Doctor remained for a few moments, thinking that Sammy and Julia would not miss his company, but about fifteen minutes later he also departed, debating in his mind whether the flirtation which had sprung up between the young gymnast and Julia might not lead to unpleasant complications.





CHAPTER IV.

**SAMMY TREATED AS ONE OF THE FAMILY—
THE VISIT OF JULIA'S ENRAGED PARENT—HE
TAKES SAMMY BY THE COLLAR—THE DOCTOR'S
INTERVENTION—THE MATTER TALKED OVER—
ANOTHER TRIUMPH OF SAMMY'S WISDOM—
THE SUBJECT OF REPRODUCTION ALLUDED TO.**



WHILE the Doctor, Mrs. Hubbs, and Sammy were at breakfast the morning succeeding the first lecture at the gymnasium, a loud and excited pull at the bell-knob was heard. The young gymnast, now treated as one of the family, was in the habit of taking his meals regularly with them. He had nothing to do with the work of the house, and when not attending to the dispensary, his class, or his books, he simply assisted Doctor Hubbs in his professional labors, and actually prescribed for some of the office patients which his perceptor from time to time turned over to him. For this service he re-





ceived as compensation his board and tuition, while old Mr. Johnson continued to provide him with all necessary clothing and money.

Biddy was absent some time in answering the bell, causing Doctor Hubbs playfully to remark that he thought "that Mrs. McMicken was attending to the wants of that patient!" But by and by she returned to the breakfast-room, saying:

"Faith an' I don't know what thot gintleman wants at all, at all. He asked for Samuel Tubbs fust, an' I sed he was at his breakfast. Thin he asked for Doctor Hubbs, an' I sed he was at his breakfastes, too. Thin he asked me ef they took their breakfastes together, an' I said yes, whin he gazed up inter my face as ef he thought I loid! I sed, 'Shall I spake to thim?' an' he said, 'Let them finish their breakfastes.'"

"Perhaps," remarked the Doctor to Sammy, "you had better go up and see what the gentleman wants, he having first inquired for you."

Leaving the table, the young gymnast with his well-trained muscle, leaped fully three steps at a time, and was soon in the office. On the very moment of his entrance he was seized by the collar by the enraged visitor who demanded to know "what he meant by his attentions to his daughter Julia?"

Had not the name of Julia been added, he could not have so quickly guessed that he was confronted



by Mr. Barkenstir, for he had never before met Julia's father.

The grasp was a tight one, and Sammy could barely turn his face upward to reply. With some agitation, he inquired, "Is this Mr. Barkenstir?"

"Yes," answered the visitor, making his grasp



THE ENRAGED PARENT.

still firmer, and waxing warmer in temper as he reflected that the young colored man who was impudent enough to wait upon his Julia, had not so much as a speaking acquaintance with her father. "Yes, sir," he repeated; "and will you explain your impertinence, sir?"





"If you will let go of me I will, Mr. Barkenstir," replied Sammy meekly, making no resistance. If he had put forth his muscular strength he could have easily put his assailant in his place. But the young gymnast did not believe in resorting to physical force in personal disputes, excepting in extraordinary emergencies, and he regretted that Mr. Barkenstir should have set such a despicable example.

After shaking him roughly Mr. Barkenstir, who had grown more exasperated every second, loosened his hold, and Sammy, settling into a chair, asked the excited visitor if he would please be seated.

"No," excitedly retorted the enraged man, approaching the young offender again, till he stood within two feet of him; "will you now answer my question?"

The muscles of Mr. Barkenstir's face—those influenced by the emotions of anger—and his pathognomical signs were such as to arrest the attention of our young anatomist and physiologist, and for a moment diverted his mind from the main question, notwithstanding its exciting import. Those facial outlines and striking gestures were, to his studious mind, worth studying. Just as the two were thus held in each other's visual grasp the Doctor entered.

For a moment he was not observed by either Mr. Barkenstir or Sammy; but as the eyes of





the latter turned towards him, indicating by their expression that another person had entered, the former turned around with a cool bow, remarking with much agitation, "Doctor Hubbs, I suppose?"

"And this is—?"

"Mr. Barkenstir," courteously interrupted Sammy, finishing the sentence of interrogation of his preceptor, and rising again to his feet. He then informed the Doctor of Mr. Barkenstir's violent behavior, expressing regret that a gentleman of such polite and cultivated appearance should introduce himself in this rude manner.

While the Doctor plainly deprecated the course taken by Mr. Barkenstir, he replied to Sammy, reprovingly, that the question had arisen in his mind, on the night previous, whether, as the world goes, it was hardly the proper thing for him to be so attentive to Julia, unless with the explicit consent of her father.

This conciliatory intervention cooled the temper of Mr. Barkenstir, and caused Sammy to drop his head with a look of mortification.

Finally, raising his perplexed face, the young man said that if Mr. Barkenstir and the Doctor could only realize how gradually the familiarity had grown to what it now seemed to be, he thought they would not harshly criticise his conduct.





"Gradually!" exclaimed Mr. Barkenstir, again warming with passion. "Last night you were kissing her on my steps after an acquaintance of less than four months!"

"Did you kiss Julia?" mildly inquired the Doctor of the boy.

"I did," meekly replied Sammy, as the tears started in his drooping eyes; but in an instant he rallied from this mood, and wiping the gathering tears impatiently away, added, "and I'll do it again if she will permit me!"

This last utterance brought Mr. Barkenstir again wildly to his feet.

"No violence!" firmly exclaimed Doctor Hubbs.

"Mr. Barkenstir," calmly and earnestly spoke the colored gymnast, straightening up from the subdued attitude he had been all along maintaining, and presenting the figure of an Apollo, "on the evening I first met your daughter she performed an act of heroism in my behalf, which not only saved me from overwhelming disgrace, but brought peace and renewed festivity to an assemblage of young people which was on the point of breaking up in disorder. For this act I feel a sense of gratitude which I am willing to repay, with any kindness or attention I may have opportunity to bestow. With all respect to you, as her honored father, this debt I owe personally to her,





and I shall stand ready as long as I live, at all times, to repay it in such instalments as may be acceptable to her. If the retaliation you have seen fit to make this morning, or something more painful, aye, if attended with fatality to me, must be the penalty, I trust I may have the fortitude to endure all, and the bravery to face all danger; but my debt I must pay!"



MR. BARKENSTIR OVERCOME
WITH EMOTION.

Mr. Barkenstir, overcome by the young man's commanding presence, the eloquence and frankness of his language, and the bravery of his demeanor, retreated, stepping backwards, till he sank down again in his chair, and buried his face in his handkerchief.

"But Sammy," interposed his surprised preceptor, "would you give her your hand in marriage if she would accept that?"

"No, sir," promptly and decisively replied the young man, "that is the one thing I could not do; nor do I think she would wish me to offer it."

"You would not?" exclaimed Mr. Barkenstir, re-





moving the handkerchief from his face and giving an intensely earnest and impatient look of inquiry.

"No, I would not!" retorted Sammy, with something of a derisive expression. "White men are constantly decrying miscegenation, miscegenation! while they are the only ones that want to miscegenate, if my eyes and ears convey the right impressions to my senses. You will find a dozen white men seeking wives or their equivalents among the colored women to one black man that is seeking to marry or take to himself a white woman!"

"You are right, Sammy!" enthusiastically ejaculated Doctor Hubbs, struck with the justice of his remarks and surprised beyond expression with the wisdom of the youth's reply.

Mr. Barkenstir fastened his eyes upon the young man with singular gaze as if making a kind of analysis of his physical and mental characteristics. He had been happily relieved of the apprehension which filled his mind when he entered, by this last bit of derisive eloquence from the lips of Julia's sable beau. Finally his curiosity led him to ask,

"Why would you not marry my Julia, if it were both her wish and mine?"

"Because," replied Sammy, "the question is by no means settled that such crossings of races are favorable to the happiness of the parties imme-





diately concerned, or to the welfare of offspring born of such a marriage. If the physiological doubts should be removed, and the results of careful investigation were favorable to such interblending, then our race should wait till it overtakes yours in education and social position, or at least till it has the same educational and social advantages, before it places the white wife of a black man, or the white husband of a black woman in a position liable to be assailed by the vulgar with insinuations engendered of low minds, and by the educated with those prejudices which would give the partner of off-color no resting-place in the social circles of either race."

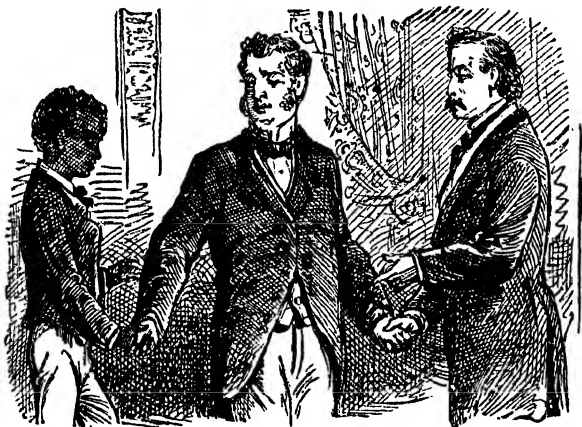
"Sammy, you are a philosopher!" exclaimed Doctor Hubbs.

"Yes, and you are from head to foot every inch a gentleman, notwithstanding your color," chimed in Mr. Barkenstir, rising to his feet with an agility which denoted that a heavy load had been lifted from his mind; "and," he continued, taking his hat from the table, "I do not know as my Julia can keep better company, or find a more honorable escort—certainly not among our fashionable young rakes. So; so;" and each time he hesitated, dropping his head as if pausing to consider well what he was about to say; "so," slowly lifting his eyes, "if you and Julia want to play the agreeable by giving each other a brotherly and





sisterly good-night kiss, you have my permission. Good-morning." In saying this, he gave his hand first to the doctor and then to Sammy, shaking that of the latter as cordially as he had only a little while before shaken the youth's whole body with an angry grip of his coat-collar.



MR. BARKENSTIR FEELING BETTER.

When Mr. Barkenstir closed the door after him, Doctor Hubbs felt that Sammy deserved unbounded praise for the judicious manner in which he had met the ireful father, and proceeded to bestow it upon his pupil. When the Doctor finished





what he had to say, Sammy replied that this whole question as to the expediency of the crossing of the races brought one at once to the consideration of the subject of reproduction, and that this was one upon which he must confess great ignorance.

"And still," interrupted the Doctor, "it is one of greater importance than almost any other, because it concerns the proper development of the human races morally as well as physically."

"In consequence of the fact," he continued, "that the early pagans were so struck with the creative power of the reproductive organs, that they made idols to worship and charms to be worn about their necks in imitation of the human organs of reproduction, the early Hebrew sentiment became antagonistic to not only these charms and idols, but also to the natural organs which they were fashioned to imitate."

"Can that be true?" inquired the astonished young gymnast, "that idols were thus made, and charms thus worn about the person, moulded after those organs?"

"They were indeed, and the materials of which they were constructed consisted of stone, metal, pottery, ivory, and wood," replied the Doctor. "In the secret museum of Naples, a large number of them are to this day preserved. The prejudice to which I have alluded was handed down with the Hebrew religion to the early Christians,





besides which the Christian religion in its early inception had to combat the relics of such pagan usages. The disciples of Mohammed had to do the same. Then, curiously enough, the Christian sects during the fourth century became tinctured with quite an opposite ancient notion, which taught that everything relating to the physical body was impure. After a season of continuous repression of the sexual passion, it broke out in the wildest expression right in the bosom of the church, and amongst its clergy, during which time and since practice and preaching have not been altogether in harmony in any part of Christendom. There is a gradual change taking place in the minds of men and women, however, respecting the necessity of understanding the subject of reproduction, and none are more ready for such investigation than the more liberal Christian ministry. In fact, intelligent people everywhere are apparently asking for light in the dark places left us by what were well called 'the dark ages.' "

Saying this, the Doctor picked up his hat and medicine-case, and was about to enter his phaeton, when he was accosted by old Mr. Johnson, who dropped around to know what should be the subject of Sammy's next lecture.

"Arrange with him," said the Doctor courteously, but hurriedly, as, with a good-morning bow, he gathered his reins and drove off.



The result of this interview with the young gymnast can be easily surmised by the time you shall have perused the next chapter.





CHAPTER V.

SAMMY STUDYING THE VARIOUS PROCESSES OF REPRODUCTION—HIS REMARKS BEFORE HIS CLASS—INTERESTING FACTS REGARDING REPRODUCTION IN THE LOWER ORDERS OF ANIMAL LIFE—THE PROCESS IN MAN A UNION OF MANY OTHERS—THE REMARKS OF THE COLORED PREACHER—THE RETURN OF SPONSIE—EXCITING SCENE.



OR fully eight weeks after the occurrence of the incident related in the foregoing chapter, Sammy spent all of his study-hours in looking over the works of William Tyler Smith, Carpenter, Trall, etc., treating on the subject of reproduction. When his preceptor was at liberty he would engage him in conversation upon this topic, for he was determined to get all the information he possibly could in relation thereto before the evening of the 7th of July, this having





been the time agreed upon for the second lecture at Gymnasium Hall. Moreover, it was his design, when he made this appointment with his old friend Mr. Johnson, to take for his subject that which had already awakened a deep interest in his own mind, provided he could sufficiently prepare himself to present it intelligibly.

With his usual disposition to go to the bottom of things which he attempted to investigate, he was not satisfied to attentively look into the means which nature had provided for the propagation of simply the human species. He found that all existing living forms were but the descendants or children of other like forms before them. The scientists had discovered at last that there was no proof of what is called spontaneous generation, by which term is meant the springing into life of something without parentage immediately or remotely like itself.

To prepare his class for his forthcoming lecture, he gave one evening the results of his investigations. He knew that many of those who met him at the Johnson Dispensary would be unable to comprehend his meaning when he should lecture upon the subject, unless he gave them some preparatory lessons. All those who had been favored at birth with white skins, and consequently with opportunities for scientific study, he thought, would be likely to possess such elementary





knowledge, although this supposition, I may as well say right here, was a mistaken one. Very few excepting students of the natural sciences know much about the subject under consideration.

On the evening referred to the Johnson Dispen-



SAMMY EXPLAINING THE VARIOUS PROCESSES OF REPRODUCTION.

sary was crowded with colored people, and a few white folks were there. Among the latter were Miss Goodlove and Minnie Biddlewicker. Miss Julia Barkenstir was noticeably absent. After speaking of the exploded theory of spontaneous





generation, he said that "every microscopic living thing had some way of reproducing itself, even to the little inhabitant of a drop of water, which is so small that it has five hundred million neighbors within that single drop! The air," he said, "was full of these microscopic beings, and it was because of the air being so inhabited, that early experimenters were misled into the belief in spontaneous generation. For they found by the aid of the microscope, that every fermenting or decomposing substance exposed to the air, at a warm temperature, became animated with myriads of minute living creatures. And as far down as these little beings are in the living world, scientists have found that they have nearly as many ways of reproducing themselves as have the animals above them. In some species a groove forms around or notches the end of the little creature, which groove deepens till the one becomes two; in others they separate into many individuals, each one like its parent. Again in some their young start out of them like buds, and, reaching maturity, fall off from the parent animalcule and become independent creatures. Still others expel their embryos through their own tissues, somewhat in imitation of the higher orders of animals, which bring forth their young from their own bodies.

"Among the microscopic parasites inhabiting the internal organs of worms and insects, one is





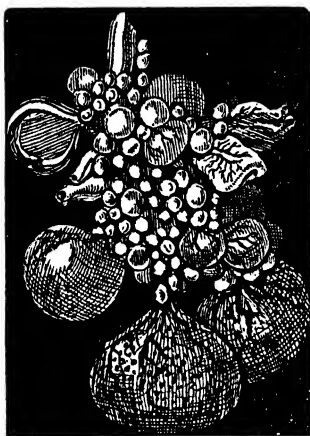
found in which two cells, very likely of opposite sex, unite, and, after a thorough interchange of their contents, small bodies, supposed to be embryos, come forth from the united mass.

"Insects, fishes, reptiles, and birds give us examples of what is called oviparous generation. That is, eggs are deposited ~~and~~ laid, and, under various conditions peculiar to each, the young develop or come forth from the ~~skinny~~ envelope or shell. The eggs of insects and fishes develop their contents without much, if any care, after they are laid, while those of birds or fowls require the warm body of the mother to cover them in nests, which are constructed of materials which exclude cold while those changes are going on within the shell, the contents of which will bring forth in due time a young bird or a chicken:

"The mammalia, as defined by Webster, consist of a class of animals comprehending those which suckle their young. They include the vertebrated animals with warm, red blood and a double system of circulation. To these belong nearly all of our domestic animals, such as horses, cows, sheep, dogs, cats, and," Sammy added with a twinkle of his eye, "rats and mice, but not cockroaches! The human family belong to the mammalia, and the method of generation among this class of animals is what is called viviparous, by which is meant that they bring forth their young alive.



"Now," remarked Samny, "strange as it may appear, nearly or quite all of the foregoing processes of generation are united in the reproductive process of the mammalia, at the head of which is the human being. In the language of Herder,



OVIPEROUS GENERATION, AS ILLUSTRATED IN THE DOMESTIC FOWL.

'Man is a central creature between the animals; that is to say, the most perfect form, which unites the traits of all in the most complete epitome.' For instance, the human female has organs called the ovaries, which, in a healthy individual, throw off little ova, or eggs. These, though microscopically small, resemble in all essential particulars the eggs of a bird or hen, except that they have no shell. While forming, they present to us something resembling what is called,

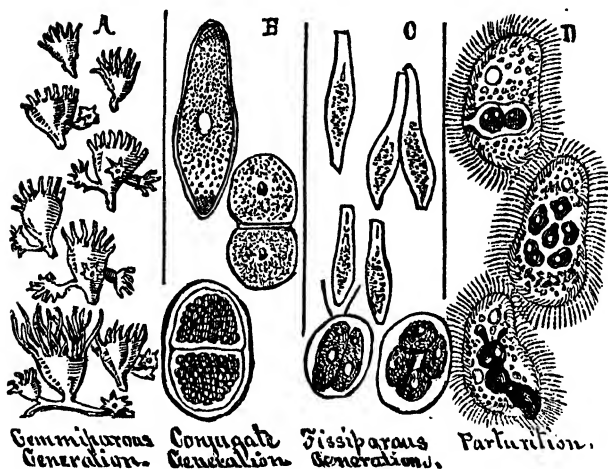
oviparous generation. The expulsion of these eggs from little vessels formed on the surface of the ovaries is much like the budding process heretofore alluded to, which is technically called gemmiparous generation. The polyp gives a good illustration of





this process. The young polyp starts out like a bud from its parent, having direct communication with the stomach of the latter. It also for a time takes food which helps to nourish the parent, but by and by the connection at the stem becomes more and more slender till it becomes detached, when it is found to have a stomach of its own, and it is altogether an independent chap ready to set up on its own account. It was for this reason that naturalists for a long time were led to believe that coral, which is secreted by the polyps, was a vegetable product. Of course what are thrown off from the ovaries of the human female are not like polyps, but the way in which they are developed and discharged from the vessels on the surface of the ovaries reminds one of gemmiparous generation. Then the human ovum, or egg, will not be productive unless it meets and joins a sperm-cell from the male after its descent from the ovary through certain organs which will be better understood by and by. Herein we find an imitation of that process where two cells unite and interchange their contents, called conjugate generation. After this union of the ova of the female and the sperm-cell of the male there takes place that division of the contents of the ovum, or egg, which is spoken of where a groove forms and deepens till one is made into two, and in others where a multitude of fissures form and divide the mass into many, a process





In the accompanying illustration, A represents a column of polyps, the first one without buds, while those below have them, illustrating Gemmiparous Generation. B represents an entozoön at the top when not united with its mate; the next below presents a union of two; and below that, the united mass, breaking up with numerous embryos, illustrates Conjugate Generation. C represents infusoria; the one at the top before it divides, the one below as it appears when dividing, and below that the two fully divided; then still below them are those which divide so as to produce two or four at one time; all of which illustrate Fissiparous Generation. D represents infusoria of another kind, illustrating the act of parturition. The top figure represents the formation of young; the one below a multiplication of them, and the bottom figure, their escape from the parent animalcule.





called fissiparous generation. Only there is the wide difference, that this dividing up of the contents of the ovum, instead of going to form so many distinct individuals again unites to form but one. Finally, when it is expelled from the parent body, we are reminded of that process in the lower orders of animal life wherein the embryos are discharged through the tissues of the parent, called parturition. Only, again, there is this difference ; instead of embryos being thrust through the walls of weak or wounded tissues, we have a perfectly developed offspring passing through natural orifices of escape."

During the delivery of this lengthy explanation, which I have abbreviated somewhat, there was not so much as the movement of a foot or the rustling of a dress. But when the young gymnast and teacher concluded, this indication of intense appreciation was succeeded by another of quite a different kind, for the applause was both loud and continuous.

When Sammy took his seat, a very large colored man, who had been sitting at some distance from the platform, arose, and, during the clapping of hands and stamping of feet which followed Sammy's remarks, proceeded to the desk. Some words in a whisper passed between the stranger and those upon the platform, after which he ascended to the desk and said :





"I will introduce myself as a preacher from Georgia. I am gratified to find that this gifted young teacher has such a large and appreciative class. There has been much discussion upon the intellectual capacity of our race. Recently one of your best daily journals called it in question. The editor, however, was quickly and completely answered by Mr. Strieby, Secretary of the American Missionary Association. This association, he tells us, has sent more teachers into the South than any other organization. He further informs us that it is not true that the colored youth are incapable of as uniform progress in the higher or severer studies as the white of the same age. As a rule, he says, they prefer mathematics, and are as successful in them as in the languages or primary departments. [Applause.]

"I have the same authority for saying that J. E. Brown, who was the confederate governor of our State during the war; became the chairman of a committee appointed in 1871 to attend the examination of the Atlanta University, a school for colored students, and to report upon the same. He gave it as his opinion, before performing his duties as one of the committee, that the examination would prove the correctness of the theory that the colored people could succeed in the primary studies, but would fail in the higher. 'Yet,' says Mr. Strieby, 'in his public address,





at the close' of the examination, Ex-Governor Brown confessed himself to have been all wrong in that belief.' [Applause.]

"Another committee was appointed by the governor to attend a similar examination in 1874. Their report, according to an Atlanta newspaper, *The Constitution*, embraced testimony as follows: [And here the old gentleman read from a slip of paper which he took from his vest-pocket.]

"The exercises were of the most astonishing and satisfactory character. Indeed, we were not at all prepared for the erudition and proficiency in their studies manifested by many of the students. A class of ten young men also read and construed portions of the *Æneid* of Virgil with ease and facility, and so also of the classes in mathematics, history, Greek, geography, etc., it may be truly said, with few exceptions, they acquitted themselves most creditably. From the evidences submitted to-day we are willing now to concede the question that, under proper and patient tutelage, the colored race can learn, and even become proficient in the branches embraced in the usual curriculum of colleges.' [Applause].

"If prejudiced people," continued the colored preacher, replacing the slip of paper, "could have been here to-night and listened to the interesting discourse of this young man, they would have been compelled to modify their views. [Ap-



plause.] The progress that Master Tubbs is exhibiting thousands of other colored youths can make, provided they have the same golden opportunities. [Applause, initiated by Young Diggles, who always imagined that he might have done as well as Sammy if he could have had his chances.] All cannot; neither could all white



THE COLORED PREACHER.

boys reach that degree of proficiency so strikingly exhibited by my young friend on this platform. [Applause.]

"Miss Youmans in her translation of *Quatre-fages*, 'Natural History of Man,' maintains that the human family are all of the same species and that hence they should regard each other as brothers, whatever their color, their language, or their country.

[Applause.]

" 'Centuries ago,' substantially remarks this writer, 'Europeans attained a social state permitting the degree of civilization of which we are so proud. Too often, under the influence of our actual superiority,' referring to the white race, 'we disdain the people who are behind. We proclaim





them incapable of reaching our level. But this opinion is not justified. Forget not that we have passed by the same halting-places. Forget not, above all, that many civilizations have preceded our own.' The white people are then reminded by this writer of the early culture of the Chinese and the Egyptians many thousand years ago, when they (the white folks) were true savages covered with the skins of beasts, and carrying about on their persons, under the pretence of making themselves beautiful, paints and tattooing like those of the most backward races of our own day. 'The effect of this,' our white brother is admonished, 'should be, on the one hand, to awaken his modesty, and on the other, to render him indulgent to people who are yet at the point which he has escaped.' " [Applause, commenced by Miss Goodlove and Minnie Biddlewicker, who wildly clapped their hands.]

Near the close of the colored preacher's remarks the discordant notes of a miserable hand organ made everybody laugh and greatly annoyed the speaker. Its tones would almost die out by the worn condition of its revolving cylinders, and then they would suddenly burst forth again like the quacking of a frightened goose. Esther had to leave the room, quite unable to control an irrepressible giggle. The last applause came in good time to relieve the spectators' suppressed





mirth, and to prevent a general outburst of laughter. While the preacher was waiting for it to subside, before again resuming what he intended to say further, in dashed a monkey through one of the front windows with a long string attached to his neck. A dozen voices exclaimed at once, "There is Sponsie!"

With frantic leaps from shoulder to shoulder, knocking off ladies' hats, and nearly pitching slender people from their chairs, he made a straight line for Sammy, and, landing in his lap, expressed by every motion of his body, in pathognomic signs, indeed, which could not be mistaken, his delight in once more meeting his young master.

For a moment the preacher was perfectly bewildered with this strange interruption, for he did not know that the intruder was an old cherished pet and companion of the teacher of the evening class. As if waiting to find out what it all meant, he sank down in a vacant chair on the platform. Mr. Johnson then proceeded in an undertone to explain the matter, and while he was doing so there were two hard, successive pulls at the door-bell.

A woman who could not speak a word of English entered when the door was opened by Esther, and talked in an excited manner. But no one knew how to answer her, for no one understood a word she said. She raised her voice and gesticu-





ated with head and hand, and finding that she could not make known her errand by words, she entered the crowded rooms and pressed through between the chairs of their surprised occupants till she reached the desk. Then she boldly seized Sponsie with her outstretched hands and snatched



THE SOLDIER'S RETURN.

him from Sammy's lap. The latter made a spring to recover his pet, but missed his grasp, and not till she had nearly regained the door was she arrested in her flight, so dumbfounded and surprised was everybody. But Esther had sprung to the door and closed it, and Young Diggles and





Father Tubbs reached the hall in time to prevent the woman's exit. Never did a bear fight more desperately to defend her cub than did this woman to maintain possession of Sponsie. But she was overcome by numbers and was compelled to relinquish the struggle, muttering familiar oaths, which were the only words she had spoken that could be comprehended.

As a matter of course, this exciting episode broke up the exercises for that evening; and as the people went out, they found this Italian woman lingering about the neighborhood, with her hand-organ and four wretched-looking babies on four wheels. Not till nearly all had departed did Sammy quite comprehend the situation. Going out nearly the last, in company with Young Diggles, he was confronted by the organ-grinder, and for the first time it flashed upon his mind that Sponsie had formed a part of this odd-looking troupe. He tried to make the woman understand that the monkey belonged to him, but he could not. He then turned back to caution his folks to look out well for the little captive; and Esther afterward said that the woman was standing about looking towards the house with the most wretched face she ever saw anybody put on, till almost midnight. She also stopped nearly everybody that passed her and tried to make known her complaint. But not many could be detained long, for





the passers-by thought she was simply begging for money, and imagined that she had applied at the Tubbs' mansion for help and had been refused. Three or four kindly persons were sufficiently interested to stand for a while and try to converse with the sobbing woman, and would then ask Esther, whose head was protruding from an upper-story window, the cause of the woman's distress. The Tubbs family were overjoyed at the return of Sponsie, and he was fed and cared for in a way he had not been for months. He ate like a starved prodigal, and nearly made himself sick with over-feeding. He went to bed at Esther's feet, and Young Diggles returned and remained overnight to assist the family, if necessary, in maintaining possession of the reclaimed fugitive.





CHAPTER VI.

THE STORY OF THE RETURN OF SPONSIE—BIDDY AND BRIDGET ON SOCIAL EQUALITY—THE RESEMBLANCE OF THE LOWER FORMS OF ANIMAL LIFE TO THE VEGETABLE—THE DIFFERENT STAGES OF DEVELOPMENT FROM THE POTATO TO MAN—THE SIMULTANEOUS CALL OF THE BACKWOODSMAN'S WIDOW AND THE ORGAN-GRINDER—SAMMY BUYS OUT THE FORMER.



AMMY was full of news the next morning when he sat down with the family to breakfast. The return of Sponsie in such a dramatic manner as described by the young gymnast produced a decided sensation, for he had not yet had the opportunity to communicate the intelligence to even the servants. Biddy was waiting at the table, and the door between the dining-room and kitchen being slightly ajar,





Bridget, hearing the name of Sponsie mentioned, stood with dish-cloth in hand listening. As the narrative proceeded, her Hibernian features were observed to cross the threshold unconcealed by the door, which was now thrown wide open. Doctor and Mrs. Hubbs, it is needless to add, seemed no less amused and interested than the girls in the description of such a serio-comic performance as that when the struggle took place between the colored people and the organ-woman for the possession of the animal.

"And then to think," exclaimed Mrs. Hubbs, "that that woman should have kept the wagon-load of poor tired babies out till midnight!"—for Esther had poured into Sammy's ears early in the morning an account of the circumstances which happened after he left.

The faithful report of the remarks of the colored preacher also quite interested the Doctor and his wife, although they rather amused Bridget and Biddy, who considered Sammy and every other "nagur" quite inferior to themselves.

"Uv quorce," added Bridget to Biddy, in her comments on the capacity of the colored man, "Sammy's a good b'y, but it's nathur ov us thot would be afther takin' the loikes ov him for a swate heart, to ba shure!"

It is not, however, strange that a white skin counts for more than brains with those who



have but a limited supply of the latter. This is noticeably the case among those lacking both brains and culture. Albeit, if Sammy, for prudential reasons, would have declined an alliance with the rich and beautiful Miss Barkenstir, surely neither Bid-
 Biddy nor Bridget stood in any imminent



A SUPPOSED BUST OF BRIDGET.

danger of a proposal from the gifted young gymnast and lecturer. As a fitting commentary upon Bridget's idea of her superiority, I will give the reader in this place a couple of pictures which would have correctly represented the busts of the superior girl and the inferior colored youth.

When the Doctor and Sammy had finished their breakfasts, they proceeded to the office-room, where they talked over the subjects which the latter had presented to his class the evening before.

"Has it," asked the Doctor, "yet occurred to your mind how much the lower forms of animal life resemble the vegetable?"





"It did while speaking of the polyps last night," answered the young gymnast.

"Well," rejoined the Doctor, "some of those things are but one remove from the vegetable, while all the higher forms of animal life are still attached, as it were, by nerve-threads to the vegetable kingdom."

This was a new and startling proposition to Sammy's mind, and the Doctor proceeded to tell him what he had told Mr. Johnson some time previously.

He again referred to the paper presented to the Science Association by Doctor T. S. Lambert. In that the writer held that life was so closely related to secretion that the two words might be interchangeably used.



A SUPPOSED BUST OF SAMMY.

"He says that, 'if we compare a man, an egg, and any plant, they seem to be sufficiently unlike, and yet we recognize that each is alive, or that each exhibits life.' Secretory tissue, you should understand, if you do not already," remarked Sammy's preceptor, "relates to an





organization or structure which is capable of taking to itself material for its growth or development, and the exuding or expelling of those matters which are useless or effete. Now, Doctor Lambert explains the difference between a plant, an egg, and a man in this wise :

“ ‘The plant is constituted of secretory tissue and woody tissue, etc.

“ ‘The egg is constituted of secretory tissue and amorphous substance, or such substance as has no regular figure.

“ ‘The man is constituted of secretory tissue, and of five other tissues, viz. : nervous, muscular, sinewy, cartilaginous, and bony. The first two active, the last three passive, tissues.

“ ‘The plant exhibits life or secretion ; the egg exhibits life or secretion ; the man exhibits life or secretion. Each, indeed, possesses in common secretory tissue.

“ ‘When transferred into the animal, the secretory tissue,’ he says, ‘has not lost its vegetative character, and when life is seen apparently in the animal, it is because the vegetative life is there. Nor is it anything new,’ he adds, ‘in one sense, since it has always been allowed that vegetative life pervades one class of animal organs.’

“ ‘He further presents the somewhat startling proposition that ‘there is in fact no such thing as animal life ; that that which is life is purely vege-






table, the process of secretion, persistent only in secretory tissue. There is animal action, but not animal life !'

"It strikes me, however," remarked Doctor Hubbs, "that the secretory tissue derived from animal progenitors; however vegetative in its primary character, may evolve or develop animal life, just as the egg may evolve or develop nerve, muscle, bone, etc., when, as a matter of fact, those organs cannot be discovered in the egg before its possibilities are proven by the patient sitting of the hen upon it. But he is doubtless correct where, in another place, he says 'that the process of generation is purely vegetative.'"

This last remark lighted up Sammy's eyes not a little, and he exclaimed, "Oh, I think I see what you are gradually coming to. You are going to say that there are germs of plants and animals which can hardly be distinguished from each other until they have been placed in conditions to develop their final character."

"Not only that," said the Doctor, "but Mr. Huxley tells us that 'there is one kind of matter which is common to all living beings, and that their endless diversities are bound together by a physical as well as by an ideal unity. And,' he says, 'the difference between the powers of the lowest plant or animal and those of the highest, is one of degree, and not of kind.'"





Again Sammy's face brightened as he remarked :
" Then I suppose you would say that the secretory tissue of the germinal eyes of a potato would only have that degree of power which would enable them to appropriate to themselves those substances and fibres which would produce a well-filled hill of potatoes ; that the secretory tissue of an acorn would possess that degree of power which would enable it to secrete the woody fibre. etc., necessary for the growth and development of the oak ; that the secretory tissue of the germ of the mammalia, united with its companion cell, possesses that degree of power which enables it not only to develop the organs belonging to the vegetative system, but, in addition to them, to lay nerve-telegraphs, muscles, and supporting bones in all parts of the body, which are thus gradually developed and set in harmonious action ; and finally the secretory tissue of the germ of the human being united with its sperm-cell has the degree of power which enables it not only to unfold the vegetative system which continues to carry on the various rebuilding processes, and to take on the animal organization with its wonderful system of nerves, muscles, etc., enabling it to move about to supply its physical wants, but to add thereto a more complete nerve-centre, or brain, and, at last, to evolve that most wonderful of all its developments, the perfected, psychic faculty, or soul. "





"That is it, my boy," replied the Doctor, with an earnestness he had caught from his enthusiastic pupil. "And you may further say that this original secretory tissue belonging to each of the varieties you have named, has the power to secrete in its appropriate vessels additional germinal secretory tissue which is capable of reproducing or propagating vegetables, animals, or beings of like kind."

The Doctor had hardly finished the above sentence, when the Backwoodsman's widow was suddenly ushered into the room by Biddy, who had let the woman in at the basement door. She had doubtless forgotten the lesson she received when under the tuition of the street urchin, on her previous visit, and did not know how to pull the bell-knob.

"The gal sez you've got the critter agin. Glad on! The pesky thing squirmed, and wriggled, and twisted, and whined, and jabbered till he got away, an' then he scampered as if my old dog Badger wuz after him."

As the widow was getting off this lingo in a screeching, high-toned-voice, without so much as a "how do you do" to start with, another woman with a boy at her side was presented, with a rap on the partly open door. She had watched through the windows the progress of the one who approached the house but little ahead of her, and



then took the same roundabout course herself, to wit: down the basement steps, through the basement hall to the stairs, up the stairs to the ground floor, forward to front room, a place she might



MONKEY CLAIMANTS MEET HERE.

have entered almost directly by taking the only visible door to one who does not take the pains to pass under the front steps to find another.





Sammy sprang to his feet and whispered in the Doctor's ear that the new-comer was the Italian woman.

"A pretty complication," returned the Doctor in an undertone, as he arose from his seat and asked the woman to come in.

The organ-grinder, it appeared from what the boy said, had been to the Johnson Dispensary, and was sent by Esther to the Doctor's.

The backwoodsman's widow, after staring at the woman intently for a moment, stepped aside and dropped into a chair. Having seated herself comfortably, she again fixed her staring eyes on the new-comer, as if curious to know what might be her errand.

When the last arrival discharged a lengthy volley in the Italian tongue at the boy she had brought with her for an interpreter, Mrs. Tinkins turned with astonishment to Sammy, and asked in an undertone:

"What on arth is the matter with that ere 'ooman? She talks jist as my old man did when he was ravin' crazy."

But before Sammy had a chance to answer, Mrs. Tinkins was surprised to find, by what the interpreter said, that the stranger had come to take away the monkey, wildly insisting, without telling how she came by it, that it belonged to her.

Not knowing that Sponsie had been lately lost





and recovered, and thinking that the monkey might have escaped from this claimant at the time when her late husband found the animal on his farm, she at once mentally determined to investigate the matter with sufficient thoroughness to ascertain whether or not the woman was an impostor.

"Look-a-here now, jist let us hear yu describe that 'ere critter afore you lay a single hand on to him," exclaimed Mrs. Tinkins earnestly, as she excitedly arose from her chair and approached the Italian woman with her index-finger raised. "Ok, I forgot she didn't know nuffin herself 'cept what that brat tells her," added the dismayed Mrs. Tinkins, as the one addressed turned her large, black, expressive eyes inquiringly to her interpreter.

At this moment the Doctor pulled the sleeve of the widow, and, turning her over to Sammy, the recent loss and recovery of the monkey was carefully recounted by the young gymnast, while the Italian woman, in answer to the question repeated to her by her interpreter, proceeded through the latter to describe every peculiarity which Sponsie had, even to a kind of mole on the back of his neck.

When interrogated, the organ-grinder would not tell where she obtained the monkey, although, with a palpable falsehood on her lips, she said, through her interpreter, that her poor, crippled old husband





paid a hundred and fifty dollars for him because he was a trained animal, and then, she added, "he was a nasty thing till we whipped him, and made him decent," which story to the doctor's mind was as much of an untruth as the other statement, for he had known nothing of the wound the monkey

received when the tragedy so fatal to the first Sponsie and old Blücher occurred.

Indeed, he was so disgusted with what he thought to be the abominable lies of the new claimant, he had hardly the patience to attempt to disprove her claim; and after briefly telling her the circumstances under which the monkey escaped from Sammy's

possession, he pressed the woman and her

boy towards the door, till they were fairly outside, when he resolutely shut it in their faces. They were terribly angry, and hung menacingly around the neighborhood for several hours.

After they were disposed of, the Doctor turned



THE DOCTOR ILLUSTRATING EXCRETORY TISSUE.





back to where Sammy and Mrs. Tinkins were sitting, and said :

"I think we shall have some trouble with that woman ; perhaps a lawsuit ; for while the statement that she paid one hundred and fifty dollars for the monkey is evidently false, it is not impossible that she bought the animal of some person who captured him in the street." It had not occurred to the Doctor's mind, nor indeed to the widow's, before, how slender was their own claim on this queer piece of disputed property. "How do we know," asked he, "but that the original owner, who lost him when your husband found him, may yet turn up ? And if this woman should sue for his possession, how can we show any clear title to him ourselves ?"

"But I'm goin' to take the critter hum with me," replied the widow. "That 'ere 'ooman don't know me from a side ov sole-leather, nor where I hang out. Ef she cums grindin' her squawkin' machine about my house, old Badger'll make them black eyes of hern so mighty big she'll fall clean through 'em."

Both the Doctor and Sammy had to laugh at the queer expressions of Mrs. Tinkins, but the former told her in a calm but decisive tone that he could not let the animal go out of Sammy's possession till the dispute with the Italian woman was definitely settled. "It is not impossible," he





said, "considering how we came by him, that we should have to pay heavy damages if we were to allow him to pass out of our hands. With this unquestionably fraudulent claim settled, we cannot refuse to turn him over to you, and then you will be at liberty to defend him as best you can against any other claimant who may spring up with the pretence of having owned the animal before your late husband found him on his farm."

The reflection painfully came over the mind of the backwoodsman's widow, that her claim on the monkey in the presence of the rightful owner would appear as ridiculous as that of the Italian woman had seemed to her, and for a few moments she was so absorbed in thinking the matter over, that her lips silently moved as if she were talking to herself. Finally turning to Sammy, she said: "Jist tell me what you'll give me for what I own in the show, an' I'll sell clean out. I don't want the critter nohow; ef I take him hum, an' old Badger gets loose, he'll chaw him up fine 'nuff fur hash."

I will not occupy space with the higgling which occurred for fully forty minutes between Sammy and the woman, the former to get Sponsie cheap, and the latter to realize as large a sum as possible in disposing of what claims she had in the animal. The Doctor left while it was going on, for he now considered Sammy old enough to make his own



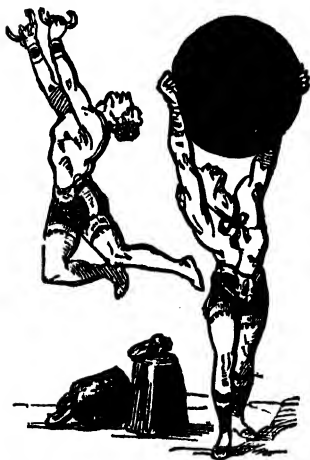
bargains, and possessed of money enough to pay any reasonable price. Sammy at last wrote a receipt for five dollars in full for all her claim in or to the monkey, and the widow, with a trembling, unpractised hand, signed the name of Ninah Tinkins thereto. The purchaser then took a five-dollar "greenback" from a roll of bills which he happened at that moment to have in his pocket, and passed it to the woman, who stood looking greedily on as if she coveted the entire roll. She doubtless felt that had she known that the young man possessed so much money, she would not have sold out so beggarly cheap. The trade concluded, Mrs. Ninah Tinkins bade Sammy goodbye, saying as she did so, in something of a pathetic tone, "You won't never see me no more, fur I don't never go nowhere 'cept on bissniss."





CHAPTER VII.

THE MYSTERIOUS BOX AT THE GYMNASIUM—
FATHER TUBBS' CURIOSITY TO OPEN IT—IT
CANNOT BE OPENED TILL EVENING—SAMMY
SURPRISES HIS PRECEPTOR WITH WHAT HE
KNOWS OF FLORAL AND HUMAN REPRODUC-
TION—THE CALL OF THE ITALIAN FAMILY.



OUR young gymnast, during all his early summer studies and attentions to his class, did not neglect his physical exercises, but spent an hour or two each day in the gymnasium, swinging the Indian-clubs and going through other exercises calculated to develop not only the muscles of the arms, shoulders, and chest, but those of the abdomen, back, lower limbs, and,

indeed, those of every part of the body.

After attending to his Dispensary duties on the morning of the 7th of July, he gave an hour to such physical exercises, and before leaving the





Gymnasium he was surprised by the delivery of a large, heavy box, borne on the arms of four stout men into what had come to be known as Gymnasium Hall. The box apparently had no marks upon it, and all the men knew about it was that they were directed by Mr. Goodlove to leave it where they were at that moment setting it down. Sammy tried to lift it, and to discover what it was by peeping between the cracks of the box, but all of this kind of interrogation came to naught, for he could not even guess what it might be.

His next move was to go home for a hatchet, determining within his own mind that he would not return to the office of his preceptor without being able to tell him what Mr. Goodlove had contributed to the gymnasium.

Returning with the hatchet, he found that it would be necessary to turn the huge case over before attempting to open it; and after struggling for some time till the perspiration poured from his skin, he again returned home and sought the assistance of his father. By the help of the old gentleman the box was turned upon its side, when a card was discovered, which Sammy had not before seen. The most conspicuous inscription upon it was, "THIS SIDE UP WITH CARE." The men, of course, observed this direction just as all express messengers and freightmen always do, the rule being so invariable that any one wishing to have a





thing transported with a definite side uppermost, should not fail to put this direction on the bottom.

Beneath the prominent top line already quoted was, "Dr. Samuel Tubbs, Gymnasium Hall, etc.," and in the lower left-hand corner a note to the ef-



THE MYSTERIOUS BOX.

fect that the case must not be opened till the evening of the 7th.

Father Tubbs was so curious to know what the box contained that he proposed that they should remove just one board and then screw it on again. Sammy took what should have been the parental position if the proposition had emanated from





him, and told his father that such a course would be hardly less than dishonorable.

Father Tubbs vindicated himself by saying, "De box am directed to you, and de ting am yourn enyhow; jess like yer mudder! she wouldn't took a apple from ole Massa's trees 'ceptin he sed she mout." But after righting the case so as to have the card-side uppermost, Sammy firmly insisted that it should remain in this way till evening.

Returning to the office of his preceptor, the young gymnast was glad to find the Doctor in, trusting that he could give him some clue to the contents of the box. Strange to say, Doctor Hubbs had not received the least intimation that such a case was to be sent to the hall, and consequently he would not venture a prediction as to its probable contents. From its weight and size, however, it was thought quite possible that it contained some such machinery as is used in what are popularly called lifting-cures.

"You have not long to wait before you will know all about it," said the Doctor. "Too little time for speculation, Sammy, for you know you ought to give still further attention to the subject of your lecture."

"I guess not," carelessly replied the confident boy, going to the library and taking from a shelf a Botany for young people entitled, "How Plants Grow," by Professor Asa Gray. "First," said he,



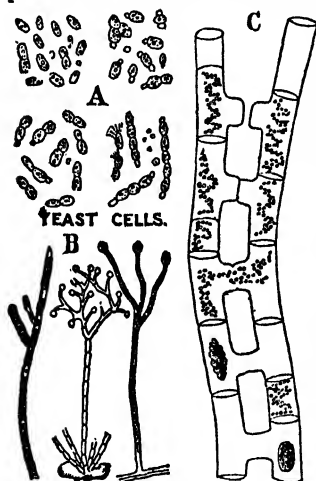


"I shall speak of the similarity between the secretory tissue of the vegetable and animal worlds, then of the peculiar modes of reproduction among the lower forms of animal life, and finally show how much similitude exists between the floral and human family in their reproductive processes.

"Why, Sammy, you surprise me! I fear you are going to undertake more than you will clearly be able to perform," replied the Doctor, with an anxious countenance. "Well, now, let me show you something," said Sammy, taking up paper and pencil to make a few hasty sketches, while at the same time he went on to say: "I have been extending my studies of anatomy and physiology of late by looking into the lower forms of life, both animal and plant, and I find that the lower in the scale we search the less difference is it possible to discover between them. Thus in the lowest forms of each it is found that there is not only similarity of structure and composition, but also complete identity in their modes of reproduction. As a single polyp starts an unlimited family by the budding process, so the yeast plant in beer and the various fungi which appear as moulds, increase with great rapidity by gemmiparous generation. (Here Sammy sketched what I have copied in this place. Figs. *A* and *B*.) Conjugate generation by plants is well illustrated by a kind of algæ which occurs as a fine, thread-like green scum on



the surface of pools. In order that this plant may produce seed, it is necessary for two perfect cells to come together and mingle their contents in this way. (Fig. C.) Fissiparous generation and even parturition are also seen to occur in very inter-



esting microscopic plant cells which are easily found in stagnant water. When we come to compare the higher orders of plants and animals, we notice that while the process of reproduction becomes less simple in each, and there remains a marked resemblance in the essential details, the organs by which it is performed become varied and adapted to the different ways in which animals and plants live, and they have less close similitude. The analogy between the organs is more complete in function than in form. Thus in the Morning Glory, which Professor Gray uses as an example of a *perfect* flower, the *essential* parts are the stamen (C) which bears at its top a knob full of pollen or the male element of the flower, and the





pistil with its ovary at the base containing ovules which correspond with the fallopian tube and ovary of the female. But there is a more remarkable functional analogy. Just as the ovule produced in the ovary of the female of all animals requires the presence and influence of the male germ to start the processes by which it becomes developed into the perfect animal, so the ovules of plants cannot ripen into seeds which will reproduce the plant unless the pollen or male element be conveyed from the stamen to the top of the pistil, and send down a filament to the ovules below. The corolla (*A*) and the calyx (*B*) are not called essential organs, because they may be, and in some plants are absent without impairing the power of reproduction.

REPRODUCTIVE ORGANS OF THE MORNING-GLORY.



Now for the more evident differences. In the first place, the stamens and pistils are usually contained in one corolla, while the reproductive organs of the higher animals are not so united. The male has an organ called the penis, which might be likened to the





stamen—the difference between them being that the former derives its fertilizing fluids from organs called the testes at its base, while the latter gives off its pollen, or fertilizing substance, from what is called its anther, at the apex. The ovaries of the human female are not in the womb, as those of the morning-glory are found to be in the calyx, or cup, but are located in the human body on each side and a little above the womb—may be said to lie a little forward and below the point of the hips on each side of the abdomen; the Fallopian tubes, two in number, reach out to the ovaries from the womb, and often grasp them in what are called their fimbriated or tasseled extremities, instead of being joined together in precisely the same way the style of the pistil is joined to its ovary. But in the human female the offspring begins its life within the womb, the same as the seed or fruit of the flower begins its development within the calyx."

To say that Sammy's preceptor was astonished at this indication of the analytical powers of his pupil's mind would utterly fail to describe either his facial expression or his exclamations of amazement. After the first outbursts of surprise, he asked: "How came you to think of all this?"

"Well, you might suspect, if you were to read Trall's Sexual Physiology," replied Sammy, "that I was put in the way of drawing this comparison





by what is said therein of the sexual organs of plants. But such was not the case, as I had drawn these diagrams and mentally composed what I have told you before I opened that book. Reading this work of Professor Gray's," remarked Sammy, turning the leaves of the book, "which gave the pictures of the reproductive organs of the morning-glory, suggested to my mind the close parallel between reproduction in flowers and animals."

"Well, my boy, I must confess that it had not occurred to my mind before!" exclaimed the Doctor. "You will do! Count on me as one of your most attentive listeners to-night, unless unforeseen professional duties call me away;" and saying this the Doctor passed out of the door and jumped into his phaeton, which was awaiting him. The latter had not been gone twenty minutes before the office-bell rang, and Biddy, with a mischievous-looking face, called Sammy into the hall. There stood the Italian woman, with a baby on each arm; the little interpreter with another; and an old crippled man, who turned out to be her husband, with a fourth baby. The woman had evidently brought this strange zoölogical exhibition along with the expectation of awakening the sympathies of the Doctor and his colored assistant.

All were invited into the office, but Sammy did not request them to be seated, for he did not care





to have them stay long. The woman proceeded forthwith, through her interpreter, to make known her grievances respecting her disputed ownership of the monkey, after finding that the Doctor himself was not to be seen. As she told Sammy about her poor husband, he put on an extra look



THE SURPRISE-PARTY FROM BAXTER STREET.

of anguish, and managed to get up a nervous tremor which passed down in successive paroxysms from his head to his feet. The babies were also made to cry by pinching, which act, though slyly performed, did not escape Sammy's keen eyes. Then it came the little interpreter's turn to





be spoken of, when he at once put on an expression of appalling dejection, and, resting his weight on one foot, looked intently at a subdued figure in the office-carpet, while he repeated in broken, whining English what she said in his native tongue. He, it appeared, was an orphan whom she was trying to bring up to be a useful and respectable citizen, and the assistance of the monkey was required to make her musical establishment sufficiently attractive to gather the coppers and nickels which enabled her to feed her babies, take care of her infirm husband, and keep the little dejected orphan at evening-school.

Notwithstanding the amount of imposition that was clearly perceptible in this queer group, Sammy's kind heart was touched not a little by the spectacle before him. He made a full explanation of the remarkable circumstances under which the little animal was frightened away from his Twenty-seventh-street home, and told them that if anybody sold them the monkey, the person doing so knew that he was doing wrong. When the little interpreter repeated this explanation to his mistress, she frantically clasped her hands to her breast, and, raising her large black eyes imploringly, exclaimed in broken English :

" Oh, mi undridi fifti dolloro ! "

Sammy was, as his preceptor had been, greatly disgusted with the pretence that this impecunious





family had paid anybody one hundred and fifty dollars for the monkey. But when he saw the tears flowing profusely from the poor woman's eyes, he felt sure that Sponsie had cost them considerable—possibly ten or twenty dollars.

"I will," he said, "from my own funds contribute five" (meaning dollars) "towards your relief."

The little interpreter understood this proposition to be five shillings, and so repeated it in Sammy's hearing to his weeping mistress. Her eyes flashed with happy emotion in an instant, and the dark shadows lifted from her drooping brow, as she bowed her head gratefully in acknowledgment of his kindness.

Our young gymnast at once saw that he had been deceived, in spite of his caution. "They would not," he thought to himself, "appear so delighted to receive five shillings if they had paid even so much as five dollars for the monkey." But thinking it cheap at almost any price to get rid of such troublesome folks, he sat down and wrote a receipt for them to sign, as he had done in the case of the backwoodsman's widow. The interpreter took the five shillings and signed the name of his mistress, when the whole party left with as joyous faces as if they had picked the money out of an ash-barrel.

"A clean steal!" exclaimed Sammy to himself,





in the parlance of the street, as he shut the door after them. "A clean gain," thought these tricky people to themselves, had their mediations been audibly interpreted as they, in the happiest of moods, descended the steps.

It is a lamentable reality that the young, generous heart, as it grows older, grows, too, more suspicious of those who ask favors or alms. Hardened by being the repeated victim of imposition, year by year, it becomes less accessible to the cry of distress. It is difficult, indeed, to distinguish between good acting and actual suffering. Careless money borrowers and professional beggars make the pathway of life a thorny and rugged thoroughfare for the tender feet and bleeding hearts of honest, unfortunate people who need an insignificant loan, a night's lodging, a loaf of bread, or, maybe, a railroad ticket to bear them to a friendly and hospitable roof. When a generous soul discovers that he has been made the victim of imposition, his first grief is that he may the next time refuse aid when it is truly and deservedly needed. The heedless borrower and professional beggar, by bringing distrust and heartlessness into the human family, may be justly regarded as among the worst enemies of mankind.





CHAPTER VIII.

**THE SECOND LECTURE IN GYMNASIUM HALL—
SAMMY'S OVERWHELMING SURPRISE — MR.
JOHNSON SPEAKS—SAMMY'S LECTURE — HE
TRACES THE PHENOMENA OF REPRODUCTION
FROM PLANTS TO MAN — SPONSIE TAKES UP
A CONTRIBUTION AT THE CLOSE—EVERYBODY
JOLLY.**



WISH every one of my young readers could have been present at Gymnasium Hall on the evening of the second lecture in that place. The crowded house! The surprise that was given the young gymnast! The presence of Mr. Barkenstir, Doctors Hubbs and Winkles, and Mr. Goodlove! Sammy's successful presentation of his subject! The appreciation that was manifested by all whose good opinions were worth having! The amusing incident near the close! All conspired to make the occasion one 'ong to be remembered.





The young gymnast, accompanied by his preceptor, left the office in Broadway at a quarter to eight o'clock, arriving at the hall just as the clocks in the neighboring towers were measuredly striking the hour appointed for the lecture to begin. Only a few scattered people were passing upstairs ahead of the Doctor and Sammy, leading the former to remark that the attendance would probably be slight. But on reaching the door of the hall, they found the passage obstructed with those who were standing, while the settees were closely packed with people of all ages and colors. As soon as the expected speaker and his preceptor succeeded in elbowing their way through the crowd that blocked the entrance, and joined arm-in-arm to walk up the aisle, Miss Goodlove struck up "Hail to the Chief" on a beautiful cabinet organ before which she was seated at one side of the platform. This unlooked-for surprise, together with the deafening applause of welcome which greeted the ears of the lecture-party when the attention of the audience was directed to them by the sudden outbreak of the music, nearly overpowered Sammy, who nervously quickened his step and sank down in his chair almost breathless with emotion. Recovering in a measure from this, he became absorbed in his meditations as the enchanting music thrilled the six thousand filaments of his auditory nerves and immersed his psychic



faculty in the mellow waves of sound. As he thought of the strange-looking, rough pine box and the "thing of beauty" which had issued from its unplanned boards, he was reminded of the spangle-winged butterfly which, under the strange



MISS GOODLOVE'S PRESENTATION-SPEECH.

laws of reproduction governing its kind, came forth from the web the obnoxious worm had spun.

Miss Goodlove, on concluding the air of welcome, gracefully stepped upon the platform and read from a slip of paper in a tremulous voice a neat little speech presenting the organ as a gift from her father and herself, not to any person in





particular, but to the institution which Mr. Johnson in his generosity had founded for the moral, intellectual, and physical improvement of those of his people who could and would avail themselves of the facilities it so abundantly afforded under the management of the eloquent and capable young gymnast and teacher, Master Samuel Tubbs!

The delighted colored people, at the close of Miss Goodlove's address, arose en masse, waved their handkerchiefs and hats, and cheered the retiring speaker, who quickly, after a modest bow, retreated to where her father sat, and dropped beside him, out of sight of all except those near by, in a seat which had been reserved for her.

This neat little presentation-speech, called for a word of acknowledgment from old Mr. Johnson, who occupied his accustomed chair on the platform. It was, too, very happily given, for he had been apprised several days previously of what would happen, and had prepared himself accordingly. Before taking his seat, Mr. Johnson bestowed deserved praise upon the gifted young man whom he had chosen to conduct the new institution, and concluded by introducing him to the audience.

The young gymnast and lecturer arose from his seat amid the confusion attending the clapping of hands and stamping of feet, and opened his address by alluding in touching terms to the kindness





of all his friends and to this last welcome contribution from the kind Mr. Goodlove and his generous and charming daughter. He also gave expression to the reflections which passed through his mind when comparing the rough box, encasing the handsome instrument and all its bright ivory keys, with the chrysalis of the butterfly. With a few remarks upon the way in which this beautiful insect is reproduced, he proceeded, with the aid of diagrams on the blackboard, to present the facts and comparisons which he laid before his preceptor on a former occasion. Then the enthusiastic speaker struck out upon something which was new, novel, and striking to the minds of even those who had given physiology considerable attention.

"Providence," he said, "had devised ingenious means to prevent plants and animals from becoming extinct. The secretory tissue of the flowering plant evolves woody tissue depending upon roots made fast in the soil for its nourishment. It cannot consequently go in quest of what it needs. It cannot carry the fructifying pollen of the anther of its stamen to the stigma of the congenial pistil. The complete flower, it is true, has within its corolla both stamen and pistil, but these are as brother and sister. Plants cannot be incestuous. The stamens always keep their stigmas away from their sister pistils by growing shorter or longer or facing away from them.





“Then how does the pollen reach its congenial ovule? Why, when conditions are most favorable for this union, the flower sends out a fragrance which attracts the insects. This perfume is called by Professor Gray the flower’s advertisement. The winged insects instinctively read therein that they are welcome to all the exuding nectar they can bear away, if they will but carry on their legs and wings the pollen of the brother stamens to the pistils of their distant chosen companions, and bring back to the sister pistils the distant pollen which may be acceptable to them. How much power the pistils have in selecting and rejecting suitors it would require a close and persistent investigation to determine; but it is believed to be considerable. And when, from any cause, they accept the pollen from the brother stamens, the descendants of the plant to which they belong, or those which come from such seed, degenerate. ‘No species,’ Prof. Gray tells us, ‘continually self-fertilized, can long exist.’ [Applause.]

“When,” continued the lecturer, “the secretory tissue of, say, the mammalia, instead of developing woody fibre (like the secretory tissue of the plant), evolves the bones, muscles, nerves, etc., of the animal, the secretion in that animal of germs capable of reproduction *mechanically* acts upon the surrounding nerves which communicate with the brain, and awakens emotions which lead him to





seek his congenial companion, and he has the intelligence, the nerves, muscles, and limbs which enable him to do so. Now, when the secretory tissue of the highest type of the mammalia not only evolves what is common to the lower types, but, going a step farther, evolves a brain gifted with organs of affection, sociability, ideality, intelligence, and virtue, as we find it in man, only the brain end of these nerves should be first awakened in the presence of an object which charms and inspires these higher faculties. Nevertheless, those ends which terminate in the germinal organs may be awakened mechanically the same as in the lower types of animal life, by the secretion of germ-cells or sperm-cells, and thereby reverse the communication, in consequence of which the same phenomena are exhibited as those which take place in animals below us.

"And this," said the lecturer, who was riveting the attention of all his hearers, and greatly surprising his preceptor and Doctor Winkles, "leads us to the question—Why are not the members of the human family aroused to the reproductive act by those impulses alone which proceed from feelings of admiration and spiritual attraction, communicating their stimulus to the brain ends of the nerves terminating in the organs of generation? The reproductive functions, be it remembered, are entirely vegetative, just as much so in the animal as





in the floral family. Under the action of the vegetative secretions, germinal cells form in the ovaries



THE SECOND LECTURE IN GYMNASIUM HALL.

of the female mammalia, and at the base of the pistils in flowers. By the same secretory process,





sperm-cells, or their equivalents, form in the testes of the male mammalia, and in the anthers of the stamens of the flower. In the lower orders of mammalia, it is doubtless alone this secretion which awakens what is called the amative impulse. Unless the human family come to a full understanding of the organs and functions of reproduction, they must be controlled by impulses having precisely the same origin. Hence my answer to the question raised a moment ago is that, by ignorance of those organs and functions, and consequent abuse of them, the human family is kept on the animal plane of development. We should try and find out precisely the age at which a man and woman should in a normal condition reach the period of puberty, by which is meant the age at which reproduction becomes possible. When reproduction becomes possible, then takes place that active secretion of the germinal cells in their respective organs. Society should then be so constituted that persons reaching that age should not be left to unnatural practices and excesses by a protracted period of what can only be properly termed sexual starvation. This condition of things established, and a thorough knowledge of the reproductive organs and functions imparted to the young before they are overtaken by the flood-tide of passion, will greatly check, if not banish, both abuse and excess. In a few generations, say in two or





three centuries, possibly, our posterity will be so constituted physically and so regulated socially that they will never become the victims of sexual starvation, of self-abuse, or of sexual excess. Their reproductive organs will not be excessive in their secretions, as they manifestly now are. In the absence of sexual starvation, there will be every opportunity for the amative emotion to take its rise in the higher faculties, when, and only when, it is awakened by a worthy and attractive object. The impulse thus aroused will traverse the nerves downward to awaken slumbering organs, and not arise from feverishly active secretory tissues upward through the nerve-tracts, to inflame and brutalize the mind. Not that there is anything brutal in either the possession or reasonable use of the wonderful organs of procreation, which the ancient pagans worshipped, the ascetics of the early Romish church pretended to hate, and the refinement of an incomplete civilization ignores. All unfavorable prejudice against them, depend upon it, springs from either ignorance or abuse. Both of these causes may be removed by the light of knowledge, just as the poisonous vapors of the atmosphere are dispelled by the light of the rising sun. And one thing important to know is, that to render man's sexual characteristics distinct from those of the lower animals, and to lay their foundation at the very origin of his existence, men and





women must be drawn together in the performance of the reproductive function by an impulse proceeding from the psychic faculty telegraphing its message of love downward, rather than by an impulse originating in starving, congested, and overloaded ovaries and testes telegraphing their morbid mandates upward. Till a new and regenerate humanity is born, it were well if all relations between the sexes inspired by the latter causes could be made fruitless; not, let me add emphatically, by an act of abortion, but by carefully intercepting the union of the germ-cell and sperm-cell by judicious means of prevention."

Although much of this was plain talk for those who were not accustomed to the society of doctors and naturalists, it seemed to touch the common-sense of nearly everybody present, and, as the fine figure of the young gymnast and lecturer turned with a bow from the desk, the audience arose to their feet, and cheered even louder than when Miss Goodlove concluded her modest presentation-speech. With the exception of Miss Barkenstir, who, it was learned, on that evening was, and had been for some time, quite ill, the usual front-seat party were present; but owing to their late arrival and the crowded state of the hall, they were scattered through the audience. They did not conceal their demonstrations of appreciation. Mr. Barkenstir looked delighted, and Sammy ached to step down





and speak to him, but feared his Caucasian prejudices would regard such a step as impertinent. It is hardly necessary to say that the latter was painfully anxious to know what had become of the absent daughter, whom he had not seen since the evening preceding the angry visit of the father. Curious to know why the father should be present and the daughter absent led to inquiries which gave the information I have already communicated.

It was so late when Sammy concluded, that there were no additional addresses from the platform. Miss Goodlove stepped to the organ and played a voluntary, which was sufficiently enlivening to induce nearly all to keep their seats. When everybody was so quiet that, but for the sweet harmony issuing from the organ, one might have heard a pin fall, there came suddenly from those in the front seats an outbreak of laughter. The irrepressible Sponsie had escaped from his confinement at the home of the Tubbs', and sought his young master at the gymnasium, which he entered unperceived. Being reminded of his late duties by the music of the organ, he instantly sprang upon the instrument, made a bow, and then proceeded to pass his little soldier-cap before the people upon the front seats.

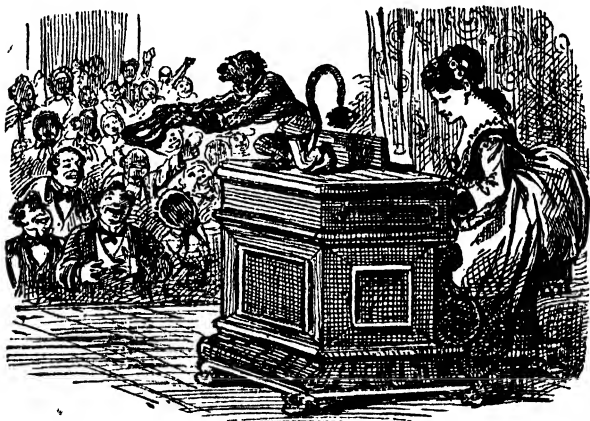
The uproar increased as one after another of the audience became aware of the presence and finan-





cial sagacity of the monkey, and although Sammy sprang from his seat to stop the little fellow, he was urged to let him go on, and then to devote the proceeds to the gymnasium.

When the merriment subsided a little, and while Mr. Sponsie was continuing to play the rôle of a



THE FINANCIAL MAN.

good deacon taking up a church collection, Sammy arose to explain. He told the audience of the apprenticeship which his monkey pet had served under the hard service of the organ-grinder, and added that the little fellow had doubtless been taught to spring upon the organ of his mistress,





and make a bow before passing his cap for pen-ries. This explanation occasioned another outburst of merriment, and everybody felt so good-natured over the affair that when Sponsie returned to the organ he emptied from his cap, as if delivering it to Miss Goodlove, quite a sum of money, amounting, by actual count, to thirty-one dollars and sixty-two cents !

Once more the now dispersing audience was put in tumultuous good-humor by the announcement of the result, and old Mr. Johnson shook his fat sides till he was almost left alone in the hall. Doctors Hubbs and Winkles, Mr. Barkenstir, and Mr. and Miss Goodlove walked out together ; Sammy, Father Tubbs, and the almost convulsed Mr. Johnson remained. The money was again counted and placed in the hands of the latter, to be disbursed for the needs of the institution. Father Tubbs whispered in Sammy's ear, as the contributions were being gathered up from the lid of the organ, that the money rightfully belonged to him, as it was his lecture and his monkey that had caused the people to be so generous. This was the sentiment, though not precisely his words. But the grateful boy was shocked by the cupidity of his father, and gave a pull at his coat-tail, as a hint to silence.

It is but justice to Father Tubbs to add that his queer notions about almost everything originated





in a brain dwarfed in its early years by slavery, and further narrowed rather than developed by the hardships he had encountered before he had been raised to a condition of comparative comfort by the generosity of Mr. Johnson. To have people made upright, it is important, first, that the germinal secretory tissue comes of the right stock; second, that it is planted under favorable conditions of mind and body on the part of the parents; third, that the child shall have the care of intelligent mothers or educated and sympathetic governesses, rather than illiterate nurses; and, fourth, that its mind and its body shall be surrounded by such influences and opportunities as shall encourage its complete mental and physical development. Every child which is to be, beginning at a period immediately preceding its conception, has a right to have its life centred in viable and capable germinal secretory tissue, and then to become all that its secretory tissue has the inherent properties to evolve.

This is a secret which children who are to become future mothers and fathers cannot find out too early, for early impressions are always the most lasting.





CHAPTER IX.

HATS, AND A FUNNY STORY OF ONE—AN UNEXPECTED MEETING OF SEVERAL OF SAMMY'S FRIENDS—PRIVATE LECTURES PROPOSED—SHOULD CHILDREN BE ADMITTED?—SAMMY HEARD ON THE SUBJECT—HIS VIEWS PREVAIL—ANOTHER SURPRISE IN PREPARATION FOR THE YOUNG GYMNAST—HE GOES ON A VACATION TO THE COUNTRY.



NOTHING of special interest transpired on the morning of the day following the second lecture at Gymnasium Hall, till Sammy returned from the Dispensary at about 12.30 M. On entering the hall, he found a great many hats on the rack, enough, he playfully thought, to bear off the entire crop of a good-sized country apple-orchard, where the stamens and pistils had devoted the entire spring to wooing, wedding, and reproducing. One of the hats was enormously large, reminding him of





the one that was lost from the cars on the down-train of the New York and New Haven Railroad. Perhaps some of you never heard that story. It is a good one, and will bear repeating, notwithstanding the fact that it got into the newspapers, and thereby obtained a wide publicity :

A gentleman put his head out of the window of a car under full headway, and a naughty bush, growing near the track, knocked off his hat. It was a bran-new one, and made to order, for he had a massive brow, and could never find one large enough in the shops to fit his head. At the first station before which the cars stopped, he sent a telegram back, to inquire for the hat. In reply, he received the following laconic dispatch : "The hat was observed a short distance from Darien ; mistaken for a depot, it was run into by a freight train. Will take it up in sections, and forward it to New York !"

Among other hats in the hall, Sammy recognized the well-known tile worn by his old friend Mr. Johnson, and he surmised that the large one belonged to Mr. Goodlove.

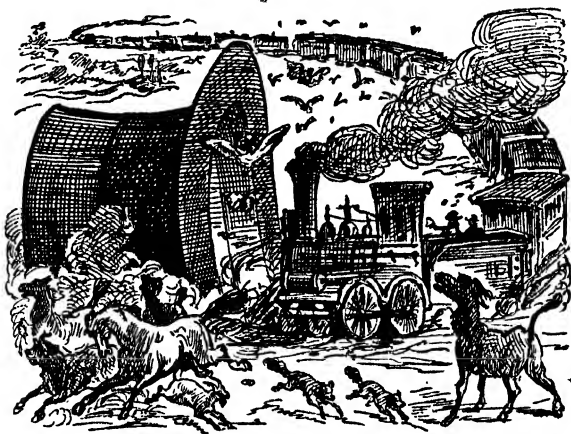
He had not more than time to close the outer door and lay off his own hat before his name was called by the Doctor, who ushered him into the office, wherein were seated not only the two gentlemen whose hats he recognized, but beside them Doctor Winkles Mr. Barkenstir, the young lawyer





who was attentive to Miss Minnie, the colored preacher who spoke before the evening-class on a former occasion, and another colored gentleman who came with him.

The last two had called to make the personal acquaintance of the gifted young colored gymnast,



THE STORY OF THE HAT ILLUSTRATED.

who, according to their estimation, was exhibiting not only remarkable physical development, but equally extraordinary mental capacity.

Mr. Goodlove, accompanied by the young lawyer, had stepped in to suggest a few private lectures on the subject of the reproductive organs,





some for the ladies exclusively, and others for the gentlemen alone. They urged that while, from a scientific standpoint, nothing could be said against the propriety of presenting the subject to a mixed audience of gentlemen and ladies, they were confident that those of each sex would feel more at ease, and thereby receive greater benefit, if the audience should be made up wholly of one or the other sex.

Old Mr. Johnson had called to congratulate both preceptor and pupil upon the success of Sammy's second lecture at Gymnasium Hall, and to inquire when it would best suit his convenience to deliver another one.

Mr. Barkenstir had dropped in to hand to the young gymnast his daughter's porte-monnaie containing bank-notes of various denominations, from two to twenty dollars, footing up in the aggregate to the handsome sum of one hundred dollars, which she begged, in a pretty little note, that Sammy would accept for the furtherance of the objects of the Gymnasium.

Doctor Winkles had sought the worthy preceptor and wonderful pupil to congratulate, criticise, and suggest. He was greatly surprised and pleased that Sammy had acquitted himself so well, but he did not think favorably of delivering lectures upon such subjects to an audience composed of both sexes. He fully coincided with the views





expressed by Mr. Goodlove and his young friend. Another criticism he desired to make was with reference to the admission of children under fifteen years of age. He thought, as the lectures became more widely known and largely attended, many would seriously question the propriety of instructing those who had but just emerged from their cribs and trundle-beds in this department of physiology. Personally, he believed that children could not be taught the construction and use of every organ of the body at too early an age; but public opinion, he thought, would have to advance considerably before parents generally would be willing to have their small children fully informed of the anatomy and function of the reproductive organs. Until parents were thus willing, it would be good policy, in his estimation, to exclude children of tender age unless accompanied by their seniors.

Old Mr. Johnson and the colored gentleman who was introduced as Mr. Millward at once expressed sympathy with Doctor Winkles' suggestions.

Mr. Goodlove, the young lawyer, and the colored preacher dissented from Doctor Winkles' views. The first of these three gentlemen admitted that it was a serious question as to precisely how early all matters relating to human reproduction should be presented to the minds of children. But



his observation had been sufficient to convince him that young people, before reaching the age of puberty, generally learned all about such matters through either pure or impure channels; clandestinely, and in a way to do great harm if not taught

openly by those whose duty it is to instruct them.

The young lawyer followed, concurring with Mr. Goodlove. "In a recent trial of a man for selling obscene literature," he said, "District Attorney Fellows made the remarkable statement that 'the young ladies' seminaries in this city and its vicinity were actually flooded with books and pictures of the most indecent kind, surreptitiously introduced, — sometimes

MY YOUNG READERS, MR. MILLWARD; MR. MILLWARD, MY YOUNG READERS.

hidden in bouquets of flowers, sometimes in parcels of nuts and candy, — by such men as the prisoner at the bar.' There are," he added, with great earnestness, "but two ways of approaching a knowledge of the sexual organs: the scientific road which leads to elevated reflection and a proper un-






derstanding of their uses and abuses, and the morbid, prurient path which intoxicates while it entices the youthful mind, and leads to self-abuse, moral degeneracy, and physical death. From his observation among those of his own sex in the boyhood from which he had so recently emerged, he was convinced that by one or the other of these avenues most children reach a knowledge of the reproductive organs long before they attain the age of puberty. Which of these roads," he asked in conclusion, "do you, who are parents and guardians, wish your little people to take?"

The colored preacher expressed himself highly pleased with the young lawyer's views, and said he himself was not only opposed to the veil of mystery which parents were prone to throw over the eyes of their children, but with the sentiment too generally implanted in the minds of the young that the sexual organs are in some way disgusting and unclean. Nothing, in his opinion, could be better calculated to foster abuse and neglect of the delicate glands, tissues, and nerves of which they are composed. To teach that they are unclean and something of which to be ashamed, is to instigate, as it were, an internecine war between the moral faculties and those having charge of the reproductive organs. The former, if brought by the conflict to regard them as low and brutal, fail to protect and care for them properly. If a child





has a pet dog or cat, and the parent impresses the mind of the juvenile with the idea that the animal is contemptible and unclean, he will exact all the selfish enjoyment from it that he can while treating it with utter neglect, if not with positive cruelty. Suppose it to be a mastiff large and strong enough to draw the child about in a small wagon; the prejudiced young master will extort all the pleasure he can from the obedient animal, while he will withhold therefrom all sympathy and protection. The dog will be the submissive slave of a cruel and relentless tyrant. So, too, if the parent teach the child that his or her organs of procreation are parts of the body so objectionable that they ought not to be thought of, there will instinctively grow up in that child's mind a disposition to neglect those organs in all that appertains to their cleanliness, healthfulness, and development. When, finally, they are found to possess the quality of yielding sensuous enjoyment, there will spring up in addition to the disposition to neglect the further inclination to abuse; to extract pleasure from them while morally despising them. The ultimate effect upon the general health is seldom considered, if thought of, by the ignorant offender. He knows nothing of how delicately they are constructed, and never dreams that they constitute the masterpiece of the hand of the Divine Artificer, through which alone the wonderful works of His creation in the





living world are perpetuated. "Without early and timely instruction it is impossible," said the preacher, "that these important organs can have the care which their complex mechanism demands for the maintenance of their health." In conclusion he remarked that he thought Doctor Hubbs, who had made such a smart boy of Sammy, would fully coincide with him.

All that the old gentleman said was certainly common-senseful, but when I tell you that I have only reported briefly the substance of his remarks, the reader will surmise that his comments were prodigiously lengthy. The good man was something like a twenty-day clock—very long in running down. Almost every prayer-meeting has a good deacon of the same stamp who does not know when or how to stop.

Doctor Hubbs had listened attentively till all except Mr. Barkenstir and Sammy had expressed their views. The shrewd-looking cotton-broker had remained non-committal, but nevertheless appeared to be an interested listener. The young gymnast, true to his modest character, remembering that he was only a boy, had remained silent. But he was exceedingly impatient to hear something from his preceptor, and while casting a glance around the room he was pleased to see all eyes resting upon the one who was expected to respond either in sympathy with the last speaker





or with the opinions presented by Doctor Winkles.

"I see nothing to which I could take exceptions," remarked Doctor Hubbs, "in what our clerical friend has uttered. The position taken by my professional brother, Doctor Winkles, is worthy of consideration ; and still, as I weigh the arguments which have been presented at this unexpected meeting of the friends of my pupil, it seems to me that it would be inexpedient to exclude anybody, young or old, from the lectures. When dens of impurity are open on all sides to allure the young, without regard to age, and when people of depraved natures are acting as colporteurs for the devil and his literature, it would hardly seem advisable to close the eminently respectable doors of science to those, young or old, who are disposed to obtain knowledge through a source which is sure to elevate and in no instance debauch the mind. My voice would be to admit all who would take an interest in the lectures. It might be advisable to have lectures exclusively for one sex followed by those especially for the other. In medical institutions," he went on to say, "he did not approve of separating the male and female students, because the familiar treatment of physiological subjects in mixed classes prepared the young practitioner to advise without embarrassment patients belonging to the sex opposite





to his or her own. The young male practitioner was often disconcerted in the earlier years of his practice when called to the bedside of a sick woman. The young female practitioner who has received her education in an exclusively woman's college must find it difficult to answer the questions of an anxious husband or father of a patient laboring under diseases of a peculiar nature. Mixed classes in medical education overcome this reserve without necessarily impairing the modesty of the young doctor. It has often and truly been said that science recognizes no sex in the presentation of its wonderful truths. For the reasons suggested by Mr. Goodlove, however, there might be an advantage in popular lectures upon the reproductive system, to have them exclusively for one or the other sex."

Doctor Hubbs paused as if he had presented all that he had to say, when old Mr. Johnson broke out with—

"Well, sir, Doctor Samuel Tubbs, sir, what have you, sir, to offer on this momentous question, sir?"

"Beg your pardon!" exclaimed Doctor Hubbs. "I shall be pleased to hear from Master Sammy, but I want, before concluding my remarks upon this subject, to say that I think parents unwittingly commit a great sin in not informing their children at a tender age, as soon as they have the language





with which to inquire, of the natural processes by which they are brought into existence. Those who set a great value upon truth, and regard falsehood as inexcusable and criminal in their social and business relations, will coolly tell a child that he came from heaven upon a star ; or that Mrs. Somebody brought him from the market ; or that Doctor Somebodyelse made the parent a present of the baby ; all of which are but samples of the numerous truthless and ridiculous inventions to account to the child's mind for the mystery of his being."

"Why, you wouldn't inform an infant as soon as he might, in his childish curiosity, ask the question, would you?" inquired Mr. Goodlove, with an expression of incredulous surprise.

"As the result of my observation, and of what has been told me by some reformatory mothers, I feel compelled to reply Yes. Some earnest, truthful, Christian women have frankly told their young children of their peculiar condition when about to bear to them a new brother or sister. In every instance, I am assured, such confidence had awakened in their young minds the tenderest love, sympathy, and solicitude. The name mother was from that moment invested with a fresh charm ; its new meaning made them feel more nearly related to the one who had borne them for many months beneath her own anxious heart, and then





brought them, with much suffering to herself, through the only pathway God had provided for their little dimpled feet to enter this beautiful world."

The old colored preacher was so animated by this remark that he clapped his hands enthusiastically.




THE HOME OF MR. MILLWARD.

cally and exclaimed: "I can now see what has made Master Sammy the bright, useful boy that he is. Thanks be to God that the gifted youth has had a teacher so wise, noble, and truthful!"

All present, save Dr. Winkles, who preserved a professional dignity which had never forsaken him





excepting on the occasion when he disguised himself, heartily responded to the old preacher's sentiments, causing the unassuming object of so much praise to blush and drop his head in humility.

"I was only repeating the eloquent words of a Christian mother in what I last said," finally spoke the modest man, "and surely I deserve little credit for Sammy's progress. Instead of reflecting facts and opinions derived from my teaching, he daily astonishes me with those which he picks up from an endless variety of sources, and, too, with the original ideas which emanate from his own ingenious brain. Your old friend, Mr. Johnson," concluded he, directing his eyes to his pupil, "would like to hear your views upon the subject we have been talking over."

The young gymnast was observed to be laboring under as much embarrassment from what the Doctor had remarked, as the latter had been by the enthusiastic exclamation of the colored preacher, and earnestly begged to be excused. But all eyes were now fixed upon him, and old Mr. Johnson urged him in his peculiarly vehement way to speak his sentiments.

"I am disposed," Sammy finally said, "to defer to the judgment of my elders. If I were to act according to my inclinations alone, I think I should choose to lecture upon the subject of reproduction before an audience composed wholly





of those of my own sex. But in any case I would not make a distinction based upon age. I have more recently emerged from childhood than any one of you present, and consequently the temptations and dangers which beset the child are fresher in my memory than they possibly can be in yours. It is a singular delusion in the minds of those who have passed through the experiences of childhood and reached middle or advanced age, that children do not early find out the secret which parents strive to keep from them. I should say that few boys and girls reach the age of ten years without learning it from some source ; and their pretended ignorance in the presence of older people is but the natural offspring of the deception which has been so ingeniously practised upon them. The parent deceives the child, and the child in turn deceives the parent. This early forfeiture of confidence between parent and child is fruitful of mischief. The secret of his birth, learned from the lips of a parent or teacher, elevates the child and saves him from danger ; acquired through the undercurrent of vulgar conversation, it poisons the child's imagination and renders him an easy prey to destructive vice. A noted preacher has said : ' I can never enough wonder at that profound and sacred mystery where two lives, quickened into union by the rapture of unspeakable love, flash forth the spark of another being.' The fact, prop





erly presented, is wonderful—aye, awe-inspiring—and not liable in the least degree to degrade the mind or give rise to morbid impulses. When parents fail to disclose it at the family hearth, the teacher or the physiological lecturer should, if he be able to catch the infant ear, communicate the secret of our Maker's most singular device to the guileless child before he learns it from lips which profane the name of God and His marvelous works."

All present were astonished and electrified by these wise utterances; and when Sammy concluded, Doctor Winkles withdrew that portion of his criticism relating to the exclusion of children from the lectures, and old Mr. Johnson and Mr. Millward joined in retracting the assent they had given thereto.

Mr. Barkenstir, who had up to this time taken no part in the discussion, said that "his prejudices at the outset were with those who thought it better to exclude children; but he would now confess to the same change of opinion as that which Doctor Winkles had manifested."

It was therefore decided that a private lecture or two should be unreservedly given, with diagrams and charts that would convey correct impressions, first to men and boys, and then to women and girls, without respect to age; and Sammy was advised to prepare himself for so doing, subject to





appointments which might be made by the generous Mr. Johnson.

Here old Mr. Johnson and Sammy left the room for a few moments, as if to confer upon the matter. When the former returned he was unaccompanied by the young gymnast, who had been detained by a summons from Mrs. Hubbs.

As Mr. Johnson resumed his seat, Mr. Barkenstir remarked: "Sammy is really a most extraordinary youth."

"He is, indeed," replied Doctor Hubbs; "and you would all be still further surprised with his original and practical sayings if you had the opportunity that I have of talking with him every day."

Here the Doctor proceeded to relate to the gentlemen Sammy's brilliant conception of a gymnasium constructed in such a way as to supply motor power for indigent mechanics and poor sewing-women. (See Vol. I., Chapter XIV.)

"Why, sir, has he never mentioned that to me, sir?" earnestly inquired old Mr. Johnson.

"For the reason, I presume, without positively knowing, that he feared that out of the generosity of your heart you would straightway go to the expense of carrying out the costly plan. He feels that he ought to suggest no more outlay of money for him or his projects until he earns it by his own unaided efforts."





“I will put into Mr. Johnson’s hands my check for five hundred dollars,” exclaimed Mr. Goodlove, “if anybody else will contribute a like sum towards a realization of Sammy’s benevolent dream.”

“I will accept the challenge and double the amount,” promptly spoke Mr. Barkenstir.

“My building, sirs, shall be put into the hands of trustees, sirs, and donated to the project, sirs,” enthusiastically joined in Mr. Johnson.

“And I,” said Doctor Hubbs, “will unite with my friend Winkles, if he will consent, and bear with me equally any expense for the furtherance of the plan exceeding the amount so generously donated already, unless other willing contributors come forward with the wish to participate in the enterprise.”

Doctor Winkles thought he would rather have an estimate upon such an untried experiment before assenting to Doctor Hubbs’ proposition; but when assured that twenty-five hundred dollars would certainly cover the entire cost, considering that the building was already secured, he said he was willing to be counted upon for a donation of five hundred dollars.

Finally, Mr. Millward said that he would obligate himself to secure sufficient contributors to make up any deficiency, if deficiency there should be.

After some further conversation among the gen





tle men with regard to the custodian of the funds and director of the enterprise—Mr. Johnson having been chosen as the former and Doctor Hubbs as the latter—a pretty extensive programme was laid down during the brief absence of the young gymnast, who was not out of the room more than forty minutes altogether. It was briefly as follows :

The building belonging to Mr. Johnson was to be immediately transformed into an institution after Sammy's beneficent pattern. The gifted boy was to be sent out to Mr. Millward's country-place, about forty miles from the city, on Long Island Sound, there to remain, ignorant of what was going on, till the work should be completed. Forgetful of the retardator and accelerator nerves, generous friends had almost killed Sammy with happy surprises, and now they were about to give him one more startling than all the others. Sponsie was to remain at the home of the Tubbs', as Mr. Millward had a great prejudice against the monkey family. The two doctors promised to fit out the studious pupil with a number of first-class physiological works for his entertainment and instruction. While the less important details of the things to be done were being talked over, the reappearance of the young gymnast was a signal for the dispersion of nearly the entire party, each taking out his watch and expressing surprise at the lateness of the hour.





As Mr. Barkenstir was about to depart, Sammy begged permission to send Julia an open note of grateful acknowledgment of her liberal donation to the funds of the gymnasium. Cordial assent being given, the note was warmly pressed in the father's hand, for the boy had hastily written it during his absence; seated in a room which commanded a view of the outer door. He determined to summon the courage to offer it to the father before the latter should leave, and the generous acceptance of the note by Mr. Barkenstir was another one of those happy surprises which so frequently fell to the experience of the triumphant youth.

After all excepting Mr. Johnson had gone, the Doctor said to Sammy that it was the united opinion of all the gentlemen who had so strangely and so casually met, that he should have a vacation in the country, and Mr. Millward had extended a very pressing invitation to him to spend a few weeks at his delightful-home on the Sound.

"Why! how can I?" interrogated the youth, with eyes dilated with surprise. All his duties at the dispensary and evening class at once filled his mind, to say nothing of the contemplated private lectures on the subject of the reproductive organs. Few young heads or shoulders ever carried so much as Sammy's. His look of interrogation was first flashed into the eyes of his preceptor, and then as earnestly turned to Mr. Johnson.





Johnson Dispensary,

Open from 10 till 12, forenoon,

(Sundays excepted.)

DR. SAMUEL TUBBS, Attending Physician.

New York, July 8.

My dear, generous friend Julia:

How can you, when your poor body is racked with pain, remember me and the institution my venerable friend Mr. Johnson has so generously founded? I am overcome by your kindness to me and your liberality to the gymnasium.

Accept, from Mr. Johnson and myself, our grateful thanks, accompanied with ardent hope that a kind Providence may lay his healing hand upon you and restore you to the enjoyment of unbroken health;

*Your grateful friend,
Samuel Tubbs.*

FAC-SIMILE OF SAMMY'S LETTER.





The latter replied, "Sammy, my boy, sir, you must not lose the chance, sir, to take a vacation at Mr. Millward's, sir. Beautiful place, sir! A ground for play, sir, a retreat for study, sir, and a delightful, homelike spot, sir!"

Mr. Johnson proceeded in his energetic style to

clear away all obstacles, and Doctor Hubbs helped the old gentleman to relieve Sammy's mind of the idea that he would be neglecting duty for pleasure. "I think," said the Doctor, "you greatly need rest, and that a little play, seasoned with quiet study, will enable you to make up to your class and others interested, on your return, all that they will have



DINAH EATHLANDER MILLWARD

lost by your temporary absence. You will bring a freshness of thought and a buoyancy of spirits from the green trees and fragrant flowers which will incite every one with whom you come in contact to evolve from his secretory tissue every inherent possibility." And as the Doctor said





this he cast a humorous expression at both Mr. Johnson and his bright ward, for he remembered how surprised the former had been on a previous occasion when told that man had a vegetative character.

The conversation which followed and the measures taken to prepare Sammy for going to Mr. Millward's would occupy more space than can be well spared here. Suffice it to say that in less than one week from the time the visit was proposed Sammy was a guest at the home of the Millwards, the family consisting of Mr. and Mrs. Millward, a rather tall and awkward, good-natured looking son of about twenty years of age, and a pretty, intelligent daughter of sixteen, whose colored skin had a



JOHN BROWN MILLWARD.

warm and florid hue peculiar to some colored people of what is called the sanguineous temperament. Nor shall I consume space in relating incidents, interesting as many of them would be, attending Sammy's stay at the Millward's. The object of these





pages, it must be borne in mind, is to instruct as well as amuse and entertain ; and inasmuch as Sammy was away from his class, his lecture-room, and his preceptor, little could be given in connection with the incidents of his visit that would add to the stock of my young readers' physiological knowledge. I shall, therefore, in continuing my narrative, pass over nearly eight weeks, during which protracted period our young gymnast was pursuing his rural pleasures and studies, and wondering at the end of the first month why his old friend, Mr. Johnson, and his generous preceptor, the Doctor, did not send for him.

The facts were briefly these : the undertaking of Sammy's friends was found to be more tedious and expensive than was anticipated ; there was no institution of the kind after which they could pattern ; some of their experiments proved unsuccessful, and the labor in many instances had to be done over a second and third time. But when the work upon the building was finished, and the gentlemen through whose generosity it had been performed were invited to inspect it, no one murmured at the expense or trouble it had occasioned them. It was a model of beauty, economy, and beneficence.

Every move of a practising gymnast raised water to a large tank capable of holding some two thousand gallons. This water, falling through





ingenious machinery constructed by Mr. Granville, turned wheels which gave motive power to sewing-machines, turning-lathes and grindstones. Every poor person applying to Mr. Johnson was provided with a ticket which admitted him or her to the building and the use of any of the machinery for the whole day once a week. It was a common resort of poor needlewomen, of indigent mothers of large families of children, of poor artisans, and of swarms of men and boys who made a living by sharpening knives and scissors.

The whole institution was put in running order and a class of gymnasts was formed in spite of the warm weather, under the tutelage of Sammy's gymnastic teacher and the sanitary direction of Doctor Hubbs. Everything was fixed to give Doctor Samuel Tubbs a grand surprise on his return from the country.





CHAPTER X.

WHAT THE WOODBINE SAW—SAMMY'S RETURN TO THE CITY—HIS STUDIES OF REPRODUCTION IN THE COUNTRY—THE CALL OF MR JOHNSON—THE ARRANGEMENTS FOR SAMMY'S DOUBLE SURPRISE.



WHEN, early in September, the young gymnast began to receive some intimations from his preceptor that his visit to the country was drawing to a close, the brake changed from its color of deep green to the pallor of light yellow, and the running clematis stood still in the bushes and put on robes as white as those which enwrap the sacred remains of one clad for the tomb. Had old Mrs.

Burtell been present to observe this remarkable change, she would have coupled it in some way with the fact of Sammy's approaching departure; would, indeed, have said something in her characteristic way implying that the vegetable world, to





which the youth was distantly related, was growing pale with emotions of sadness. But if this was the mood of some of Sammy's vegetable cousins, others were more jolly and impertinent; for when he came to bid little Miss Millward adieu on the front veranda, an ivy that twined about a pretty cedar peeped saucily with its red leaves from out the green foliage to watch what was going on, and an old staid woodbine, that might have been supposed to possess less curiosity, slyly crept around the trunk of a brown old oak, and, with a perceptible blush of surprise, actually caught the bright youth bestowing a parting kiss upon the willing lips of the young companion of his rural studies and rambles.

The meeting between the pupil and his preceptor was warm and earnest, and after a cordial shaking of hands all around with all the members of the household, Sammy proceeded to unfold many of the discoveries he had made while observing the various ways in which both vegetable and animal life sought to perpetuate itself. He had read more attentively Professor Gray's books about the plants, and had watched for a confirmation of the many curious statements found therein, while interrogating the flowers and trees in his rambles through garden and field. He found that those flowers having neither rich coloring nor fragrance to attract the insects and allure them into





complicity with their wooings with neighboring blossoms, depended upon the winds to carry their fructifying pollen to the pistils of their chosen companions.

Sammy had been particularly struck with the similarity existing between the ovary of the plant and that of the animal, and brought home with



him the pistil of a lily, which he and the Doctor examined under a magnifying-glass, after cutting them through lengthwise and cross-wise. They were found to correspond with pictures given in the book "*How Plants Grow*," which I will here reproduce for the inspection of the interested reader. The pupil then turned to a book containing a picture of a human ovary, remarking that "while the seeds in the ovary of the lily could not be said to look like the ova, or eggs, in the human ovary, the office

of one clearly suggested to the mind the true function of the other."

In the illustration of the human ovary the objects like the one represented by *a* give an idea of the magnified ova, and the lighter ones like *b* exhibit what are called the follicles which have discharged mature or ripe ova.

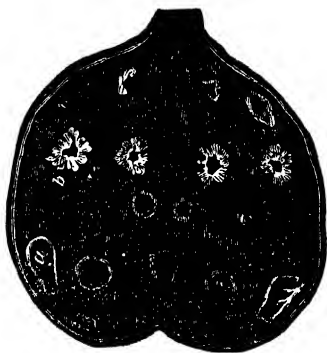




As the Doctor and his pupil were examining, and comparing the ovaries of the flower and those of the human female, with samples of one and pictures of the other, the former remarked :

“ There is one peculiarity of the action of the ovary of the human female which is imitated in but an imperfect degree by that of any of the mammalia below man, and not at all, so far as I am aware by the ovaries of flowers. So soon as what is called ovulation, by which is meant the formation of ova, or eggs, in the ovary of a growing girl, commences, she is visited once in every twenty - eight days with the flow of a fluid resembling blood from the organs of generation.”

THE HUMAN OVARY.



“ I see by the books I have been reading,” replied Sammy, “ that this is so, but I have seen no good reason given to account for it.”

“ Physiologists find it difficult to explain this peculiar function,” said the Doctor, “ but my own





opinion, partly suggested by the writings of others, and partly original, is this: When the formation of the eggs is going on in the ovaries, these organs are visited once a month with an unusual supply of blood for the purpose of furnishing the nutritive and vital material used in producing the eggs. It has been observed that blood flows to the stomach in greater quantities when the function of digestion is being performed than when that organ is in comparative repose; and it has been noticed that the brain is supplied with more blood when it is agitated with thought or emotion than it is when nearly or quite at rest."

"But no blood flows from those organs at such times."

"No," replied the Doctor, "certainly not from healthy stomachs and heads; and it is thought by some physiologists that if the human family were in a perfectly healthy condition, the flow of blood of which we are talking would not occur. But in the present condition of humanity, the female organs of reproduction become so congested at such times, that unless the flow takes place serious symptoms manifest themselves, so much so that the ignorant girl who uses cold water, snow, ice, or other local application, to stop the flow, is sure to bring on derangements of a troublesome and sometimes fatal character. Some of the worst difficulties I have had to treat in my practice have





been caused by the carelessness or ignorance of young women who had been overtaken by this function without any correct knowledge respecting it. If they had had any accidental information of its almost positive appearance on reaching the age of puberty, they had not been informed of the necessity of avoiding undue exercise or exposure during the time of its visitation. If they had never heard a word about the matter, as had been quite too often the case, they were frightened at what they considered a dangerous hemorrhage or bleeding, and had resorted to cold applications or closely applied bandages to arrest the flow. Whatever may be the fact as to its being a natural or unnatural function, every young woman on its appearance should encourage it by avoiding damp or wet feet, cold drafts of air at out-houses, general and local baths of low temperature, or great mental agitation, every hour during its continuance. Nothing, indeed, should be done to prevent its appearance with the greatest periodical regularity."

"And you do not know what it is for during the continuance of the imperfect condition of humanity?" said Sammy in an earnest, interrogating tone.

"I was about to give you my views," replied the Doctor, "some moments ago, but your questions turned me aside from the explanation. I will now resume: I have already said that the



organs are visited monthly with an unusual supply of blood during the many years that the individual is producing in her ovaries the little germ-cells, or eggs, called ova. The period of ovulation usually begins before the age of fifteen and continues till forty or forty-five, but varies



THE CHAT AFTER THE WELCOME.

greatly in different persons—some stopping at an earlier, and others continuing to quite an advanced, age. After the nutritive portions of the blood have been taken up by the monthly visitation of blood to them, what is left of it is exuded through





the walls of the ovaries, fallopian tubes, and womb, to pass off through the cavity of the latter and thence through the vagina. Now, it is my opinion that in the present imperfect condition of the race, abnormal secretions take place in the ovaries, fallopian tubes, and the cavity of the womb, which should be washed away, and that Nature thus deluges these parts with the useless blood after its best qualities have been absorbed by the ovaries for carrying on for another month the function of ovulation. With the periodical deluge, which is called the function of menstruation. all the unnatural accumulations of these organs and cavities are cast out. So long as the feminine side of the human family is visited with these periodical overflows, it is dangerous to disregard them, and every little girl should be taught by her mother to watch for their first appearance between the ages of ten and fifteen, and then to do nothing that will prevent them from taking their own course for from one to five or six days at each period. The length of time the flow should continue differs greatly in different persons."

While the Doctor was thus explaining this matter to his pupil the hall-bell rang and old Mr. Johnson entered.

"How do you do, sir, Doctor Samuel Tubbs, sir, how do you do?" warmly exclaimed old Mr





Johnson, extending his generous hand first to Sammy and then to the Doctor.

The old gentleman had called to welcome his ward and to say to him that he was advertised to give a private lecture at Gymnasium Hall on the evening of the following day. "But," said Mr. Johnson—

"Don't go to the gymnasium, sir, till I get it all washed and brushed up, sir, after this dry and dusty summer, sir! Take rest to-day and to-night, sir, and wait till to-morrow evening, sir, before you go around, sir, and I will have it in splendid order, sir!"

Here followed conversation between the young gymnast and his old friend regarding the health of the Millwards and the interesting little events which had transpired during his very pleasant visit there. The opportunity was not lost to joke Sammy about the pretty little Miss Millward. Mr. Johnson had heard that she was Sammy's constant companion in his botanical researches in garden and field, in games of croquet on the lawn, and in his rowing exercises on the usually quiet waters of the Sound.

Sammy's skin was not so dark as to conceal a blush; and though he put what is called "a good face on," his countenance was sufficiently visited with an unusual flow of blood to betray not a little of bashful emotion. Notwithstanding the presence





of this feeling, however, he was not so disconcerted as to fail to observe in it and its effects an illustration of what had been talked over between his preceptor and himself. As he felt the blood suffuse his excited face the thought flashed through his mind that this visitation of blood was quite like



SAMMY AT HOME.

that made to the human ovaries, except that it had no special function to perform, and that its pressure was insufficient to cause an exudation of any portion of the crimson fluid through his skin.

The returned rambler very naturally felt an im-





patience to see Esther and the other members of his immediate family ; and to guard his footsteps from a casual visit to the greatly changed gymnasium building, his old friend accompanied him.

It hardly seems necessary to tell you that Sponsie was overjoyed to see his young master. Esther and all the rest of the Tubbs' family felt no less happy over the return of the favorite, Sammy, but they could not manifest their delight by jumping on his shoulders or tippeting his neck with an encircling tail. They could put loving arms about his neck and give him warm kisses of welcome—and this they did with a hearty good-will when Sponsie was induced to quit his conspicuous position.

After a brief visit to the Twenty-seventh street home, old Mr. Johnson, with the vigilance of a faithful policeman, conducted the young gymnast back to the house of his preceptor. Sammy proposed, as they were descending the steps of the homestead, to take a peep into the gymnasium ; but the old gentleman made up enough ingenious excuses to prevent any such premature disclosure of the transformation which had taken place there.

Before old Mr. Johnson left him it was arranged that on the evening of the next day Sammy should go around to the gymnasium and exercise lightly from seven till eight o'clock, and then proceed to deliver his appointed lecture. Meanwhile the





Doctor was to give him enough to do to prevent him from taking a leisurely stroll in the direction of his favorite resort. With these matters all satisfactorily arranged old Mr. Johnson departed.





CHAPTER XI.

RECEPTION CEREMONIES AT THE GYMNASIUM—SAMMY RECEIVED BY FIFTY OR SIXTY GYMNASTS—SAMMY'S LECTURE ON REPRODUCTION—HE TRACES THE DEVELOPMENT OF THE HUMAN OVUM, OR EGG, AND ENLIGHTENS THE YOUNG AND SURPRISES THE OLD—DOCTOR WINKLES COMPLIMENTS THE LECTURE AND LECTURER.



HE model gymnasium, redolent of new wood and fresh paint, was as lively as a beehive before seven o'clock on the evening on which the young gymnast was to be received with distinguished ceremonies. The young colored people of both sexes, who had been receiving preparatory instructions during Sammy's absence, gathered in the dressing-rooms to the number of fifty or sixty, joking and laughing over the surprise that they were to give their chief. The young men wore what are called





flesh-colored tights, with red velvet bodices extending from their shoulders to their thighs. The young women had been provided with a costume devised by Doctor Hubbs, who desired to give the girls as nearly an equal chance with the boys as popular prejudice would allow. He knew that while the costume worn by the ladies in parlor or musical gymnastics was an improvement on parlor and street toggerly, it was far from possessing those qualities which gave entire freedom of muscle and an incentive to develop it. "When," said he, "women begin to pride themselves upon perfectly developed bodies rather than upon silks, velvets, and ribbons, with which they attempt to conceal their physical defects, the profession of the physician will become less remunerative, and children will come into the world with a secretory tissue which will be able to resist the measles, croup, and whooping-cough!" He might have added, too, that model-artist exhibitions and can-can dances would be less attractive, for well-developed women would become too familiar to the eye to excite morbid curiosity when introduced upon the platform of the unscrupulous showman. The human form is wonderful, and when developed by both physical and mental exercises, it becomes indeed beautiful; but its charms should not be so concealed in public institutions for physical culture as to make them rarities for exhibition in vulgar





play-houses. Far better than our own were the usages of the proud Spartans.

The costumes of the young women of the gymnasium, as devised by Doctor Hubbs, consisted of an entire suit of tights with an over-dress without skirt extending from the neck to a point about two or three inches above the knees. It was as loose as a bag about the body except a little graceful gathering at the waist, at which point it was encircled by an easy belt. Below the trunk of the body it divided so as to form something like loose pants which were buttoned neatly above the knee. It had to be put on like trousers, and was then fastened about the neck. This suit allowed the muscles perfectly unrestrained action and gave opportunity to display the muscular development of the limbs. Just this slight departure from the usual gymnastic dress had already created a spirit of emulation among the young colored girls to outshine each other in muscular development, and some of them who entered at the beginning of the lessons with puny and badly-formed bodies could so soon, discover growth and change, which gave them great encouragement to follow up their exercises with persevering regularity. The Doctor and his friends who joined him in establishing this unique institution had noticed these facts, and were ready at this early period to pronounce the costume of the girls a grand success.





At a few moments before seven o'clock, Sammy and his preceptor approached the remodeled building, which presented a newer appearance outside than usual. "How clean the old place looks!" exclaimed Sammy.

"Yes," replied the Doctor, "when Mr. Johnson has any house-cleaning done you will find that he does not confine the work to the inside."

"How strong it smells of paint!" again broke out Sammy as he entered the door, the hall-way being a little dark.

"The old gentleman has done a little painting I guess, as well as washing," rejoined the Doctor quietly.

"I have fixed up a little dressing-room for you here, sir, Doctor Samuel Tubbs, sir," exclaimed Mr. Johnson, putting his venerable head out of a door on the upper floor adjoining the gymnasium.

As Sammy entered the little room which was to be his private dressing-apartment, he found himself in a place about as neatly fitted up as a captain's private state-room on a first-class steamer. After looking around him with surprise, and thanking his generous old friend for his never-ending acts of generosity, he began to lay off his clothes preparatory to putting on his gymnastic costume, while Mr. Johnson and the Doctor slipped out and hastened into the gymnasium to enjoin silence upon the waiting class, which were as noisy as a





swarm of bumble-bees. Miss Goodlove was immediately placed in her seat at the organ, and the other young people were arranged in a semicircle from one end of the long room to the other. Miss Barkenstir, who, looking pale from the effects of her protracted illness, was able to be present, took a



YOUNG DIGGLES IN GYMNASTIC
COSTUME.

position in the centre of the semicircle for the purpose of making a little address of welcome. On seats around the large room were several interested spectators comprising the Tubbs family, the group who usually came with Mrs. Millstone, the Millwards from the country, and the party who were at the office of Doctor Hubbs when the gymnastic enterprise was projected, with the single exception of the colored preacher who had re-

turned to his parish in the far South. Mrs. Hubbs, taking a deep interest in the progress of Sammy, was seated with Mrs. Millstone's party.

The door was locked so that Sammy could not enter without being let in. By-and-by his firm





hand was heard on the knob, restlessly turning it backward and forward, whereupon Doctor Hubbs turned the key, and the young gymnast, attired in a rich new gymnastic costume which he had found in the closet in the place of the old one, entered. Immediately upon his appearance, Miss Goodlove struck up "HOME AGAIN," joined by some thirty or forty excellent voices.

There are some pleasures which are so keen that they are painful. Our gymnast found this happy surprise one of them. He staggered to the Doctor's side and placed his hand through his arm; he looked upon Miss Barkenstir, and, bowing, gave a smile of recognition; then his eyes wandered over the whole place made strange as well as beautiful by its alterations; and, as here and there he saw well-known faces, he nodded, and in some instances waved his hand. This he did with a magnetic flash of light from his eye as he observed the Millwards, who had come in from the country to participate in the reception.

At the conclusion of the singing, Miss Barken-



THE GYMNASTIC COSTUME OF THE GIRLS.





stir stepped forward, and in a firm, clear voice read from manuscript words of hearty welcome followed by a complete history of the gymnastic enterprise, without, however, an allusion to the beautiful lecture hall below, and a new, unopened dispensary on the ground-floor. As she proceeded with the narrative, Sammy came slowly to the overpowering realization that he was standing in a place fashioned after the ingenious pattern he had enthusiastically conceived when he was taking his first lessons regarding the muscular system.

At the conclusion of Miss Barkenstir's address, as she stepped backward with a graceful bow, the young gymnast promptly stepped forward, bravely rallying his discomposed faculties, and thanked each one by name for what had been done to fulfill what he had long ago dismissed from his mind as an illusory dream.

Space will not permit a report of either the neat speech of Miss Barkenstir or the grateful reply of the astonished and delighted Sammy. At the conclusion of the interesting ceremonies there was no time for gymnastic exercises ; simply enough for a hasty interchange of compliments and congratulations. All the gymnasts proceeded to change their costumes, and as speedily as possible repaired to the hall below, where another surprise awaited the young lecturer.

Here was a floor as large as the gymnasium,





fitted up handsomely for a lecture and class-room. In this place Sammy was to meet his class on the evenings which were not occupied with public



THE RECEPTION.

lectures: When Sammy had changed his attire he was conducted to it by his old friend, Mr. Johnson,





whereupon Doctor Hubbs, in a few magnetic words, welcomed the bewildered young man to the platform amid a shower of plaudits from a large audience of men and boys and the ladies and gentlemen from the gymnasium, who had been temporarily provided with seats in the aisles.

Sammy began to feel that he could not hold out much longer if this succession of surprises was to be continued. Nevertheless he managed, with great tear-drops starting from his eyes and grateful words almost choking his utterance, to thank his friends for this further evidence of their esteem for him and their interest in those whom he sought to instruct. Then, sitting down and turning to the Doctor, he anxiously inquired, while people were wild with applause, if it was expected that he would display his charts and proceed to deliver the lecture prepared expressly for his own sex while all the ladies were present?

"No, no," the Doctor assured him, calmly telling him at the same time to keep up his courage and not to allow his emotional nature to overpower him. When the applause subsided, Doctor Hubbs arose and thanked the audience for their presence at the happy little affair, and requested, as the lecture was to be a private one for the masculine element only, that the ladies present would now withdraw, assuring them playfully that their turn would come on the very next evening. Few





of the gentlemen retired, excepting those who had come with the ladies as escort.

Miss Julia Barkenstir was greatly distressed when she saw Miss Millward, immediately before her, turn completely around and give a most significant bow and smile to the young lecturer as she was about to pass through the door. With all her good and noble qualities Julia was unfortunately possessed of a peculiarly jealous disposition. Therefore, while she knew that Sammy could never be more nearly related to her than he was already by the tender bond of sympathy, and, may be, affection, the pleasure she had taken in extending a welcome to the returned rambler would have been turned to utter anguish could she have known just how much the pretty young colored girl had been the companion of her favorite during his protracted sojourn in the country.

When all who were to go had departed and the place became quiet, Sammy stepped forward and recounted the interest he had taken, while in the country, in studying and observing the various methods an All-Wise Creator had provided for the perpetuation of the various forms of vegetable and animal life which enlivened woodland and field.

After alluding plainly but delicately to the methods of trees, plants, flowers, insects, and finally to those of domestic animals, he came di-





THE HUMAN EGG IN ITS VARIOUS STAGES OF DEVELOPMENT.

rectly to the consideration of the organs of reproduction of the human being.

He said that the ovaries of the female and the testes of the male were alone the organs which secrete or generate the germ-cells and sperm-cells, whose union was capable of reproducing beings like ourselves. Turning to a chart and displaying it by holding it up at arm's length, he called attention to the human egg, or ovum, at the top of the chart, as it appears after it has received the little objects called spermatozoa, which come forth from the sperm-cells of the male. "These little things, which appear to have heads and tails, just within the outer circle, are," he remarked, "the spermatozoa. The next one below





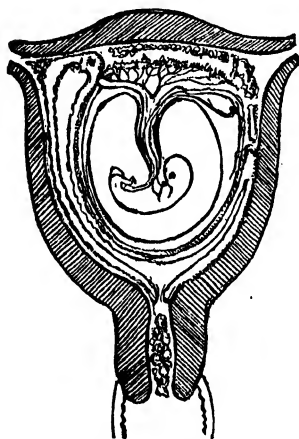
the top one," he said, "gives a pretty correct idea of the external appearance of the same egg at a later period. In the third object," he further remarked, "you have the same egg a little more advanced and so sliced off as to show the little growing embryo within it. The bottom object," he added, as he held the chart higher, stepping up in his chair, "gives us a striking idea of the marvelous change which has taken place in its contents at the end of about ninety days! [Tremendous applause.]

"I have said," repeated the gifted young lecturer, "that the ovaries of the female and the testes of the male are alone the organs having power to secrete or produce the germ-cells and sperm-cells, which, by uniting, are capable of reproducing beings like ourselves. But if these united cells were to be thrown upon the ground, nothing would come of them; they would be like the eggs of little birds tipped from their nests; they would simply go to decay. What, then, protects them while growing, and what warms them into life? I reply, the womb of the female. It is sometimes called the uterus. This is as necessary for the human ova, or eggs, to nestle in as are the nests of birds for the eggs of our little feathered songsters. But, again, the nests would not alone be sufficient to change the contents of eggs of any kind into life. The birds cover their nests with





their warm breasts while their baby-birds are taking on their characteristic forms within the shell. The human nest, more perfect than that of the birds, is not only under the mother's breast, but it is surrounded with protecting tissue through which warm, living blood is coursing continually.



THE UTERUS CONTAINING A
DEVELOPING OVUM.

If the mother dies the little embryo also ceases to exist."

Here the young lecturer unfolded another chart exhibiting the womb when containing the egg which had received the enkindling spark from the male sperm-cell. "Here we see," he remarked, "an advanced stage of the process which evolves a little new human being! And how wonderful it is! The large, round body in the cavity of the womb or uterus may be said to

represent the egg, while the object in the centre, suspended by a remarkable cord, consisting of arteries, veins, nerves, etc., instead of threads or strings, attached at the top, is the embryo, or the pretty baby that is to be, if carefully protected from



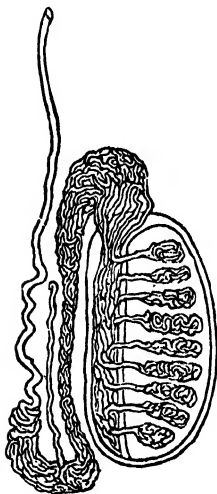


violence while growing. And it will continue to grow more and more like the perfect human body, till it will have a complete head and face, bright, sparkling eyes, pretty, dimpled hands, arms, feet, and legs, perfect little fingers and toes tipped with the prettiest of nails, and, what is more, a little human soul which will live on when its physical body is laid aside as a useless garment!" [Applause.] "Dating from the hour that it took lodgment in its little nest, it will remain there for a period varying from seven to nine months, at the end of which time it will come forth perfect in every part to gladden the expectant hearts of delighted papas and mammas, who will find themselves the proud possessors of a bran new baby!"

This quaint and clear explanation touched the sympathies of the older ones, and opened the eyes of the juveniles, exciting a loud outburst of applause. The settees were crowded with persons of all ages. To some of the younger it was a new revelation, which gave them a truer view than they ever before possessed of their relationship to those whom, without knowing and perhaps without thinking why, they had been taught to call parents. To those who had received only vulgar impressions regarding this wonderful process devised by the Divine Mind, it imparted a correct and ennobling idea. To those who had raised children



of their own, it provoked self-inquiry as to whether they had properly prepared themselves for the performance of a function so important, and whether they had protected the mother from physical and mental injuries during the period the minute, sensitive embryo was taking on and developing the human form while concealed from view in its marvelous retreat.



ONE OF THE TESTES.

"We will next," said the lecturer, when the applause had subsided, "look at a picture representing the internal structure of one of the testes of the male." Holding up a large chart he remarked: "This it is which secretes or produces what are called sperm-cells from which come forth little objects called spermatozoa. What you see here are mainly convoluted tubes, which if unraveled and drawn out would be nearly a mile in length! If, therefore, we could trace all of the tortuous pathways by which we reach this mysterious life, we should see that there





is an eternity behind us as well as an eternity beyond! [Applause.]

“Two of these little wonderful organs called the testes, enveloped by a pouch called the scrotum, are suspended just below what is called the os pubis, or the pubic bone. They are supplied with blood by arteries about the size of a crow’s quill, and from the blood with which they are fed they produce objects like those represented in this picture” [which he held up in his other hand]. “Of course they are greatly magnified in this representation. It requires a powerful microscope to see them, but when a single drop of the secretion of one of the wonderful organs we are considering is placed under the lens of a good microscope, hundreds of the spermatozoa are discovered moving about as actively as little eels in a pond. Now, it matters not how these spermatozoa reach the ovum, or egg, whether by natural means or by an injecting instrument, they at once penetrate the egg, and if the egg be fortunate enough to secure lodgment in the cavity of the womb, it throws out those little tufts, or villi, which you have



SPERM CELLS AND SPERM-
ATOZOA.





seen in a previous figure, and the evolving process I have explained to you immediately begins, continuing till a perfect little image of the human offspring comes forth from its mother's body looking as bright and lively as a little chicken emerging from the shell of its parent egg!"

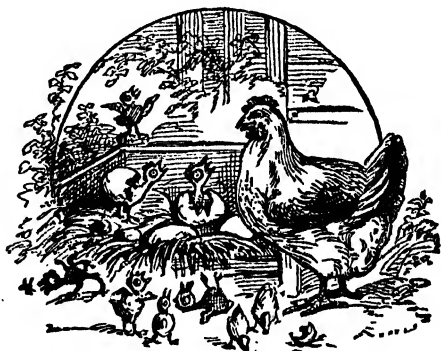
It was fully half-past ten o'clock when the young lecturer concluded, and as he took his seat the hall resounded with the applause of a delighted audience. Doctor Winkles followed with a few remarks complimentary to Master Sammy, as he always called him. He assured the young colored people that no white boys of whom he had any knowledge could boast of the opportunities they were permitted to enjoy under the tutorship of Sammy, who seemed to be zealously laboring for the improvement of their minds and bodies. "There was not," he said, "another such an institution in the world as the one which had been prepared for them; and where," he inquired with a gleam of enthusiasm, "will you find another teacher of your own age who can tell you just how your bodies are formed, and then proceed step by step to tell you how to develop them?"

While the Doctor was talking it was whispered about that he was the one who once imposed upon Sammy and his class by disguising himself with a black mask; and had not this bit of gossip been followed with the statement from knowing ones





that he had also contributed five hundred dollars towards the gymnasium, I greatly fear he would have been hissed. As it was, his compliments to the young gymnast were warmly applauded, and his remarks before he had finished produced an impression quite as favorable to him as to the one whom he was so greatly eulogizing. At the conclusion of Doctor Winkles' remarks, while Doctor Hubbs was giving notice of a private lecture on the following evening for the ladies exclusively, the audience began to scatter, and before eleven o'clock the silence of midnight reigned in the gymnasium building.





CHAPTER XII.

VISIT TO THE MODEL GYMNASIUM-BUILDING—
SPONSIE ONE OF THE PARTY—THE NEW DIS-
PENSARY—SURPRISE AFTER SURPRISE FOR
SAMMY—FEMALE ORGANS OF REPRODUCTION—
MALE ORGANS OF REPRODUCTION—SPONSIE
MEETS WITH A FATAL ACCIDENT—THE GRIEF
OF ESTHER.



EARLY the following morning old Mr. Johnson called at the Doctor's for the young gymnast. He wished to show him the successful workings of the model gymnasium building. On their way they stopped to see Sammy's folks and to get Sponsie, who had been greatly neglected since the return of his young master. That is to say, he had been neglected by the latter ; not by Esther,

for she had presented the mischievous little fellow with as handsome a gymnastic suit as that which covered the muscles of Young Diggles " or any





other man." He had, moreover, been taken to the gymnasium by his young mistress, and initiated into the arts taught and practised therein. He seemed to take to them naturally, as young ducks take to water. The monkey's ancestors were doubtless, at the very time the ancient Greeks were introducing athletic sports into civilized life, bounding from tree to tree with greater daring and agility than either ancient or modern gymnasts perform on the flying trapeze. All animals, indeed, are natural gymnasts, and instinctively know the value of physical exercise. In zoölogical gardens and menageries you will see them restlessly walking back and forth in their cages, and the old bear, to keep up the vigor of the muscles of his neck, jaws, and forearms, may be seen moving his head from side to side and stepping first on one forepaw and then on the other, by the hour, as if he had been set in motion by his keeper, and could not stop.

To return to my story : Sponsie, on joining his young master, insisted upon taking with him an old rusty carving-knife used for cutting soap in the kitchen. Sammy took it forcibly away from him once and tossed it through an open window back upon the kitchen floor. But in some way, unobserved by any one, he recovered the implement and carried it with him concealed in his





soldier-clothes, which he always wore when not arrayed in his gymnastic costume.

Arriving at the gymnasium building, Mr. Johnson turned the key to the mysterious door which had thus far been kept locked. Here was another almost stunning surprise for Master Sammy as the door was thrown open. A perfectly appointed dispensary was revealed to his wondering vision! He rubbed his brow and pinched his flesh to determine if he might not be in a dream. The door opened into a large room carpeted with a handsome oilcloth. A smaller room, evidently intended for a private retreat wherein to talk with patients, prettily carpeted with an American brussels, communicated with the larger one. Every necessary article of furniture, including chairs, tables, etc., seemed to have its appropriate place. All one side of the large apartment was fitted up with shelves and drawers for medicine, and the former were well-filled with glistening bottles presenting on their exposed sides the names of the articles they contained in plain letters of gold!

An elegant writing-desk stood in the smaller room surmounted by something looking like a case for books. On opening the pretty walnut doors, Mr. Johnson, as well as Sammy, was for a moment struck dumb with amazement. It was nearly filled with valuable books! The old gen-





tleman himself had not known of this! A card carelessly dropped on one of the shelves disclosed the fact that the volumes had been contributed by Mrs. Millstone, Mrs. Biddlewicker, and her daughter, Minnie, who begged the pleasure of adding something useful to the institution founded by



MR. JOHNSON AS WELL AS SAMMY SURPRISED.

Mr. Johnson and remodeled by the gentlemen whose names, heretofore given, were severally mentioned. Among the works were those on Anatomy, by Gray; on Surgery, by Syme and Newton, etc.; on Theory and Practice of Medicine, by King and Newton; on Materia Medica,





The American Dispensatory, Hayden, Cœ, Jones and Scudder; on Human Physiology, Bennett, Dalton, Carpenter, Flint, etc.; on Obstetrics, Cazeaux, King, and Tyler Smith; on Diseases of Women and Children, Newton and Powell, Scudder, etc.; on Chemistry, Gregory by Saunders, Draper, etc.; on Venereal Diseases, by Robert A. Gunn; and a variety of valuable text-books as well as scientific works of general interest.

"Just what I want if I should ever go to a medical college!" exclaimed the young gymnast as he excitedly took down some of the text-books and turned their leaves with a pride which no borrowed volumes had ever awakened. While Sammy was turning the leaves nervously and regaling himself with the inspiring fragrance of newly printed and freshly bound books, Mr. Johnson encountered another surprise by opening the drawer of the desk. Here was a present to Sammy from the young lawyer!—a certificate of scholarship entitling the young man to three years' tuition in the New York Eclectic Medical College, an institution of such known liberality that neither women nor colored students are excluded from its privileges. In medicine it is no less liberal.

"And what are those you have left in the drawer?" asked the delighted recipient of all these gifts, whose eyes had become sharpened by constant surprises.





The old man pressed his glasses closer upon his eyes as he took out, one after the other, Matriculation and Demonstrator's tickets, and a ticket which would admit Sammy to the hospitals. These were donated by the colored preacher, and, as was afterwards learned, were left before he departed for the South in the care of the young lawyer.

Here was an entire outfit for three years' schooling, at the end of which time, if Sammy could pass an examination (for which, indeed, he was already nearly or quite prepared), he would become a legally authorized practitioner of medicine! Not even a text-book would have to be purchased, inasmuch as the library contributed by the generous ladies contained every volume that would be needed!

While Mr. Johnson and Sammy were looking over the Certificate of Scholarship, Matriculation ticket, etc., etc., who should come sauntering in but Young Diggles! Had not his envy of Sammy been over and over again excited? Had not he thought a hundred times how much he would like to be in Sammy's place? What, then, could be his feelings now? You can imagine better than I can describe them!

"You haven't taken out everything yet," exclaimed Sammy, as Mr. Johnson was about closing the drawer, while addressing Young Diggles.





Lying in the bottom of the drawer, and large enough to cover nearly the entire surface, looking like white paper laid in to add to its appearance of neatness, was a handful of charts! They had been put in face downward. Nothing was with them to indicate their donor, but it was suspected that these came from the Millwards.

Young Diggles, in looking them over, came upon one representing the human female reproductive organs, and, laying it upon the desk, began to question his young friend Sammy respecting the various parts therein represented. These were explained in side and bottom notes, but Diggles was too impatient to stop to read them.

"The ova, or eggs," explained Sammy, "are formed in the ovaries, which are located on each side and within the abdomen in the regions called the groins; the eggs, as they become mature, are taken up by the fallopian tubes and carried down to the cavity of the womb; here, if they meet the sperm-cells of the male, they stop and form a human embryo; if they do not they pass off and nothing comes of them. This place," pointing out the passage surrounding and below the neck of the womb, "is what is called the vagina, corresponding, as I have before remarked, to the corolla of the flower; and the outer lips of the vagina are called the labia. In front of the womb





is the bladder, with a canal leading outwardly called the urethra. Back of the womb and vagina, and separated by a thin membranous partition, is the rectum, through which are cast out the solid waste matters which are of no further service to the system.

"An' you say, Doctor Sammy, dat de eggs, if dey don't stop in de womb an' make de emberryo, come to nuffin! Am dat so?" inquired Young Diggles.

"Yes," replied Sammy, "if they do not unite with a sperm-cell from the male before leaving the womb, they pass off through the vagina and become as fruitless as the apple-blossoms that fall upon the ground.

"Not so with the sperm-cells," resumed Sammy, picking up a chart representing the male organs. "These vital germs are secreted by the testes, and are carried by tubes to the spermatic vessels, so called, located between the bladder and rectum. The spermatic vessels have ducts leading to the urethra. But the sperm-cells are retained in the testes and spermatic vessels, unless, by an excitation of the organ called the penis, contractions of the spermatic vessels and their ducts are induced. When such contractions are induced, the secretions are projected outward through the urethral canal. This peculiar susceptibility of the male organ," said Sammy, "reminds me of a fact regarding





the stamens of the barberry. Within the flowers of this plant there is a contrivance by which on the touch of the proboscis of the bee the stamens spring forward suddenly and shower the insect plentifully with pollen with which it may fertilize the ovules of some other barberry blossoms. Certain excitations produce a similar action in the organ under



THE BARBERRY.

A.—Cluster of Flowers.

B.—One of the Stamens.

consideration. The penis, so called, is composed of tissues which may be greatly distended by an influx of blood from the neighboring arteries, and excitation will not only produce this distention, but, carried far enough, it produces the contractions of the spermatic vessels and their ducts, as I have before remarked, which project the sperm-cells outward much as the stamen of the barberry throws out its fructifying pollen.

“But the female, sir, has an organ corresponding with this of the male, sir,” remarked old Mr. Johnson, supposing he had told Sammy something which he did not already know.

In this supposition he was mistaken, however, for the young man immediately replied; “Yes, sir, the organ called the clitoris in the female corre-



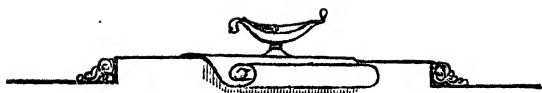


sponds somewhat to the penis of the male. It is located a little above the point where the urethra terminates, near the orifice of the vagina ; it is seldom very large, but in health it is so sensitive that when excited it causes the fimbriated extremities of the fallopian tubes to grasp the ovaries, and if any eggs are mature enough they are at once carried down to the cavity of the womb."

Old Mr. Johnson found that his ward knew respecting this point all that he himself did, and a little more, for he was not familiar with the functions of the fallopian tubes. The reply, therefore, caused him to enthusiastically nod his head in assent, and to cast an expression of great satisfaction towards Young Diggles. Observing this, Sammy felt encouraged to proceed still further with his explanation.

"All our functions," he remarked, "seem to have been so devised that when our bodily health is perfect their performance is attended with a sense of pleasure. For instance : if the stomach has not been abused, or by some other cause injured, and if the mouth and canal leading to the stomach are in a healthy condition, we find it agreeable to eat and drink those things which we need for the nourishment of our bodies ; if the casting out of our solid waste matters is attended to regularly and the parts performing this function are not neglected, so as to become diseased,





even attention to this duty is attended with a pleasurable sense of relief; if the organs concerned in the secretion and pouring out of the fluid waste matters of the body have not been abused or by other causes diseased, the act of relieving the bladder is also attended with a sense of comfort. So, too, the function of reproduction is one attended with highly pleasurable emotions, provided the organs used in its performance have not been injured by self-induced excitation, known by the name of self-abuse, or by excesses, or by neglect. Indeed, our Creator seems to have endowed that function whereby we support life (eating) and that function by which we reproduce and perpetuate it (sexual association) with the highest physical pleasure which we are capable of enjoying; but unfortunately, in the ignorance of the human family, these pleasures, unnaturally or excessively induced, allure millions of our fellow-beings to protracted suffering and premature death."

"That's a good point, sir, Doctor Samuel Tubbs, sir!" exclaimed old Mr. Johnson. "You must tell young people, sir, in your private lectures, sir, this very important secret, sir. They don't know it, sir, and are destroying themselves by bad habits, sir!"

"I intend to warn them," replied Sammy.

"De girls as well as de boys?" inquired Young Diggles, who had not yet become sufficiently famil-





lar with scientific knowledge to know that it has no sex, and belongs as properly to the former as to the latter.

"Yes," answered the young lecturer confidently, "I shall speak of this matter to the girls as well as to the boys. Although the former do not secrete and cast off cells made up of such vital substances as those which are peculiar to the male organs of reproduction, the nervous system suffers a terrible shock, unless the excitement of the clitoris and the violent commotions of the fallopian tubes are induced by causes which were ordained in the beginning by an All-wise Creator. In the female, all unnatural excitement of the complex reproductive machinery brings on serious nervous disorders, ending in many instances in idiocy or insanity; in the male they produce the same injurious effects upon the nervous system and its great centre, the brain, while the unnatural waste of the sperm-cells, composed, as they are, of the most vital properties of the blood, greatly impoverishes and disorders the latter, thereby inducing derangements of both the nerves and the blood. In the natural excitation of the reproductive organs, in what is called the sexual congress, or sexual union, certain influences are exchanged which compensate the nerves for their agitation and consumption of nervous force, and the blood for its losses of vital substance and living corpuscle."





"What are dem influences?" inquired Young Diggles, who always liked to draw Sammy out on his original magnetic theories.

"I should say," replied the ready teacher, "that they are magnetic in their nature. I should farther say that they have a sex as well as those who



WHAT SPONSIE IS UP TO WHILE HIS YOUNG MASTER IS TALK-
ING SCIENCE.

generate them. I should say, too, that the blending of these male and female magnetic influences is creative just as the union of the male and female cells is creative. The union of the latter produces a human embryo. The union of the former pro-





duces and restores to the system of each, the male and female, the nervous energies and vital substances which are used up or expended in the performance of the natural reproductive function."

"Do you say, sir, that vital substances, sir, are restored to the body, sir?" asked Old Mr. Johnson, with an expression of incredulity.

"Yes, sir, why not, Mr. Johnson? 'When two volumes of hydrogen and one of oxygen are brought together,' we are reminded by Doctor Babbitt in his Health Guide, 'they attract each other so powerfully that they rush together with an explosion and form water.' Now these gases before this union are not preceptible substances; are in fact elements which are invisible to the eye; still by their union we have a substance (water) which we can both see and feel. It is my conviction that the union of magnetic elements in the sexual congress produces actual substances as well as nervous energies, which compensate each participant for any loss of nerve-force or vital matter with which either may have parted in the performance of the natural and entirely healthful function."

Once more Mr. Johnson's countenance beamed with satisfaction at this further striking evidence of his ward's remarkable originality, as he bowed his head approvingly.

Even Young Diggles could plainly see in this





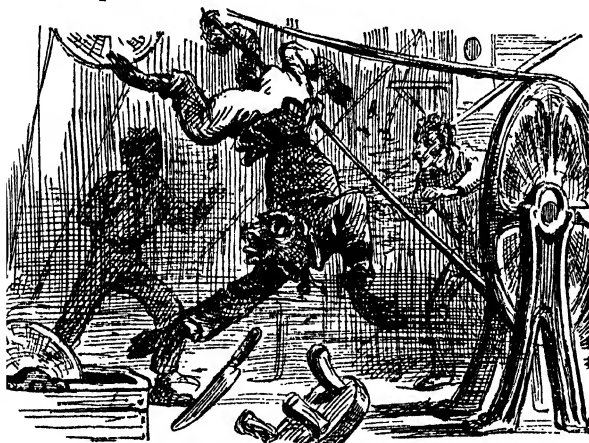
explanation why boys and girls injure themselves to such a fearful extent by self-induced excitement of the delicately organized sexual system.

"When," continued Sammy, "these expenditures of nervous energy and vital substance take place by any artificial or unnatural excitants, the results to the health are frightful. In time the girl becomes not only peculiarly nervous, hysterical, gloomy, and physically as well as mentally wretched, but she is visited with dreams of an exciting and debilitating character which continue to harass her nerves and distract her troubled mind after she has abandoned the destructive habit which lead to them. The boy who practises self-induced pleasures of this kind not only becomes affected in the same lamentable way, mentally and physically, but he brings on a morbid activity of the testes. That is, these little organs after a while get in the way of working too hard. They will draw from the system too much of the vital elements from which the sperm-cells are produced; hence, while the body is being robbed of its vital elements, the seminal vessels are at the same time becoming crowded with these cells. Then will follow not only morbid dreams but losses of these vital cells during sleep, so that after the bad habit is given up the mental and bodily health will continue to suffer; because Nature's laws have been violated and morbid conditions established.





It is a fact which all young men should know, that the male secretions should never pass off except when excited to do so by the stimulus which Nature ordained. Many a promising young man has lost his mind and wrecked his hopes by self-induced pleasures."



THE FATAL CASUALTY.

Just as Mr. Johnson was about to make some comments upon Sammy's forcible remarks, a colored man rushed wildly in from the room devoted to the sharpening of cutlery exclaiming :

"Dat dere monkey am torn all to strings ! He am dun gorn forever ! Oh mi ! oh mi !"





All rushed out of the dispensary and into the cutlery apartment, where were found a dozen or more men and boys trying to disengage Sponsie's body from a belt which passed over one of the wheels of the machinery. The spectacle was frightful to behold! Sponsie was completely disemboweled, and he hung from the wheel with his head and face terribly lacerated, bleeding and gasping for breath! It required some minutes after Mr. Johnson, Sammy, and Young Diggles entered to remove his mutilated body from the wheel to which it was held fast by the cruel belt. By the time this was effected the poor fellow had ceased to breathe!

The melancholy details of this painful casualty may be briefly related: the reason that the little fellow had so persisted in carrying with him the old rusty knife was because he wished to sharpen it as he had seen others sharpen various articles of a similar description. He had entirely removed the rust from one side, and was proceeding to grind the other on the rapidly revolving wheel, when his tail in some way became entangled in the belt, and he was in an instant carried up to the complicated machinery above and literally torn to pieces! Thus was Sammy's visit to the new building brought to a grievous and sudden close. He sadly gathered up his pet's mangled remains, yet warm with the life which had but a moment before animated





them, and with quick steps, followed by Mr. Johnson, Young Diggles, and a long procession of young and old colored people, proceeded to his father's house. Poor Esther, as she opened the door in response to the frantic pull at the hall bell and saw in an instant that Sponsie was dead, burst into a violent fit of crying. The excitement for an hour or more, as the members of the family and their friends gathered about the fearfully torn body of their little favorite, stretched out in the laundry upon the same table which had borne the remains of Sponsie No. 1 and Old Blücher less than one year since, was intense. The younger members of the Tubbs family, and their little neighbors who had shared with them the sports of the alley under the leadership of Esther and Sponsie, were plunged in overwhelming grief. Thus doth this painful emotion, in the language of some writer, "ever tread on the heel of pleasure!" "And as nothing," in the language of another, "speaks our grief so well as to speak nothing," we will silently take leave of the little mourners whom the God of Nature has perpetually arrayed in the sombre hues befitting an occasion like this.





CHAPTER XIII.

**SAMMY'S REFLECTIONS ON HIS WAY HOME—
HOW THE FAMILY RECEIVED THE GOOD AND
BAD NEWS—THE PRIVATE LECTURE TO LA-
DIES—ORIGINAL REMARKS RESPECTING THE
ELIMINATING AND REPRODUCTIVE ORGANS—
HOW THE LECTURE WAS RECEIVED—GOSSIP
ABOUT SAMMY AND HIS ADMIRERS.**



OUR Young Gymnast, Practitioner, Teacher, and Lecturer, all in one, walked slowly and alone from his parental roof to the door of his preceptor with emotions as various as his pursuits. He was about to communicate to his kind friend, the Doctor, not only all the happy surprises of the morning, but also the mournful intelligence of his second Sponsie's death. Here arose a strange commingling of joys and sorrows. They sprang up side by side in his brain, just as death and life lie side by side in the lower portions of the trunk of





the human body. The circumstances of the morning gave rise to some singular reflections. He thought of the womb, freighted with its budding life, lying just back of the reservoir (bladder) which collects the dying portions of the body; of the spermatic vessels, alive with sperm-cells capable of giving life to millions of ova, located between the graveyard of particles which had served the male body in life, and the gateway of exit of the solid waste matters which had animated either vegetable or animal life in other bodies as well as his own. Indeed, the organs of elimination and reproduction, almost blending with each other, reminded our original thinker of the cemetery, with its white marble slabs and drooping willows right in the midst of the busy village, with its live-oaks and elms, houses and stores, and wide-awake men, women, and children. He recalled, and then reflected upon the words of Huxley—"that every word uttered by a speaker costs him physical loss. So much eloquence, so much of his body resolved into carbonic gas, water and urea." Every thought, as well as uttered words, every mental emotion as well as physical action, consumes the living atoms of the body and sends their little corpses to the reservoirs of waste matters. And nestling amid these, separated only by slight partition-walls, are the germ-cells and sperm-cells which must give birth to future humanity!





"All death in nature is birth," says Fichté, "and at the moment of death appears visibly the rising of life. There is no dying principle in nature, for nature throughout is unmixed life, which, *concealed behind the old*, begins again and develops itself."

All these reflections, and many more, crowded the brain of Sammy as he sauntered moodily along, On reaching the house of his preceptor, he was glad to find all the family at home. The Doctor and Mrs. Hubbs received the news with feelings in which the joyous element predominated. Bridget and Biddy listened with emotions which partook wholly of grief. The new dispensary, the certificate of scholarship, the matriculation and demonstrator's ticket, the new text-books, etc., possessed no interest for them. They only thought of the little torn Sponsie whose mischievous spark of life had gone out forever.

Neither Doctor nor Mrs. Hubbs had received a word of intimation referring to any of the new surprises, excepting the new dispensary. The latter they had looked through and admired before the mysterious door was shut and its bolts turned. The scholarship, tickets, books, and charts filled their minds with bright hopes for Sammy's future, to the exclusion of more than a sorrowful thought of the deceased pet, whose curious pranks had so often dispelled from their minds the mists of care.





After the servants, with their loud exclamations, had departed, and Mrs. Hubbs had gone to her room, the Doctor reminded Sammy that he had an important lecture on hand that evening, precisely as on a former occasion when the first Sponsie lay dead in the laundry.



GOOD NEWS AND BAD.

"I have not forgotten it," replied Sammy, the tears filling his eyes as he recalled his former sorrow, and added the pangs of that moment to those which presently forced themselves upon his heart. "But," said he, raising a little in his chair, and wiping away the glistening globules which were





just ready to burst upon his cheeks, "I can more easily compose myself under the pressure of grief than I can under the emotions of gratitude, awakened by the events of the past twenty-four hours. I hardly know how to meet my generous friends, nor what words to say to them. Thanks are so often empty shucks, with no real meat or heart in them, the word seems insufficient to convey my genuine feelings of surprise and obligation."

Your reporter will not, however, occupy valuable space with the protracted conversation that followed. The evening came and with it a large audience to Gymnasium Hall. Besides the usual group of white folks, including the convalescent Miss Julia Barkenstir, there were several ladies whose features and complexions gave evidence that they did not belong to the colored race. Gentlemen there were none, as this was to be a private discourse to the ladies.

At precisely eight o'clock the young lecturer entered, and the moment he appeared Miss Goodlove greeted him with inspiring strains from the organ, before which she was sitting. As he passed up the aisle, hundreds of admiring eyes fell upon his sad, intellectual face and his symmetrical physique. Mental activity had done its part in developing his brain, muscular exercise its share in developing his body, and these two activities had





combined to perfect his sarcognomic lines till his head, chest, shoulders, and limbs were fit models for a sculptor.

At the conclusion of Miss Goodlove's voluntary, he stepped forward and, with uncontrollable emotion, recounted the events of the brief hours since his return from the country and the singular liberality of his friends, many of whom he was pleased to see present.

"Thanks," he said, "are poor responses for such unexpected deeds of kindness; but if my friends will be satisfied with them now, I will put forth my best endeavors to repay in works as well as words. And if I can never cancel the debt in reciprocal acts of kindness to the donators themselves, perhaps they will not feel that their generosity has been unworthily bestowed, if I should prove successful in my efforts for better preparing myself for relieving the ills of suffering humanity. I will, at least, pledge my word here to-night that I will do my best to prove myself worthy of their confidence and liberality." [Great applause.]

Turning from this subject, and rallying from feelings which almost drowned his articulation, he took up the topic of his evening's discourse. There he stood, the only one of his sex, in a hall crowded with women of all ages and colors. But so absorbed was he in the importance of the truth





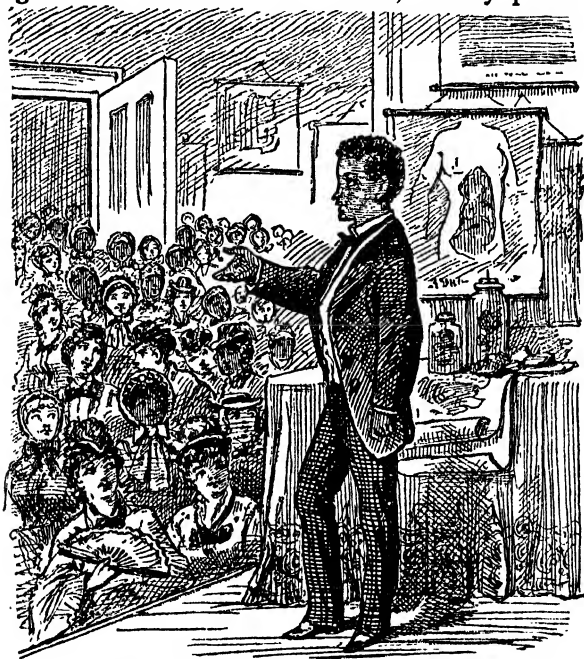
he sought to utter, it is doubtful if this fact made any impression on his consciousness ; certainly it did not in the least daze him. He repeated much of that which he presented to the young men ; reproduced substantially what he had said to Mr. Johnson and Young Diggles in the Dispensary. The charts were conspicuously displayed, and, although they referred to parts of the system which had been tabooed by false education, no one seemed to be embarrassed or affronted, for with the pictures came revelations which impressed them profoundly. There was no room in their awakened minds for thoughts suggesting indelicacy. The older ones were rather brought to realize the mistakes they had made from their ignorance of the most important organs of their bodies, and to regret that they had not had the opportunities which the young people present were enjoying. The young ones took all that was said without a thought but that it was a part of everybody's instruction.

"It is common," said the lecturer, "to treat these organs as if they had been found in bad company. Because the reproductive organs seem to be members of the same household with the urinary organs, and next-door neighbors to a prominent eliminator, some minds called refined are disposed to treat them with disrespect. But the idea that the eliminating organs are unclean is





as false as the ascetic idea that the reproductive organs are immoral. In a clean, healthy person



SAMMY'S PRIVATE LECTURE TO THE LADIES.

they are certainly not so. That which gathers in the bladder is simply composed of the ashes of





thought, feeling, speech, and motion, held in solution by those fluids which have been received by the mouth either in the form of food or drink. The chemists, by actual analysis, find only urea, uric acid, extractive matters, ammonia salts, common salt, alkaline sulphates and phosphates, and the phosphates of lime and magnesia. There is nothing herein of an uncleanly nature. But because they are dead matters they must be put out of sight with as much care as the beautiful corpse of a deceased friend, for they will undergo changes which are not agreeable to our senses. They are, indeed, the deceased particles of ourselves. But at the moment they are expelled from our bodies they are as clean as rain-water. Such as these are the waste matters that pass out through a portion of the same canal that conveys the sperm-cells and the offspring of the union of the germ and sperm-cells of the reproductive systems.

"Perhaps," continued the enthusiastic speaker, "precisely as much cannot be said of the more solid waste matters of the colon, which undergo some changes before they are discharged. But much false sentiment exists respecting these, for they are not repugnant to Mother Nature, who, if permitted, at once places them in contact with growing vegetation, and again speedily converts them into food for our support. Albeit, quite as much can be said of the external parts through





which they are expelled. They may be kept as cleanly as the mouth, and should be by every civilized person. The same membranes compose one as the other. Sufficient attention is not paid to either of these orifices. The food taken into the mouth, if not disengaged from the teeth while eating or removed by a brush immediately after, undergoes chemical changes and loads the breath, which should be as sweet as a rose, with disagreeable odors.

“As for the procreative organs,” added the lecturer, who grew more earnest as he proceeded, “they are capable of being kept as cleanly as any feature of the face. Some physiological lecturers and writers have said that the former have glands which secrete and exude matters having a peculiar odor. This is not true. It is true that the organs under consideration are liberally provided with sebaceous glands to moisten and lubricate the parts. But these secretions are as pure as the synovial fluids which oil the glands of the joints. If they have peculiar odors it is because they have been neglected. The secretions may accumulate and undergo a change—become rancid, like unsalted butter—but this is to be charged to uncleanness rather than to sweet old Mother Nature. In many persons one thorough ablution of the parts per day will prevent this. In others two may be necessary. But whether two, three, or a





dozen be required, every man and woman, every girl and boy, owe it to their self-respect and to those with whom they associate to see that every part of their body is as clean and presentable as their face. Civilization and refinement have brought with them many evils; it remains for them to accomplish this much of good!"

As the young lecturer took his seat the hall resounded with the clapping of hands, before the conclusion of which the melodious gift of the Goodloves once more broke upon the ears of the audience, as the fair young organist proceeded to give a closing voluntary.

Without any words of dismissal, for Sammy was unattended on the platform, one after another arose from her seat to depart, till the aisles and doorway were crowded. Some of the ladies gathered around the gifted young man to thank him for his boldness in presenting truths of so much moment to every human being; and near the platform stood the female members of the Tubbs' family, prouder of their son and brother than if he had been a senator.

Father Tubbs, who had been appointed janitor for the new gymnasium building, made his appearance soon after the audience began to pour out the lower door; and while he was putting out the gas and closing the hall, Sammy was on his way towards Lexington Avenue with Miss Millward on





one arm and Miss Barkenstir on the other. It was his purpose to escort the former to Mr. Johnson's door, and then to accompany the latter to her father's residence on Fifth Avenue. Gossip, which is ever as busy in city as in country, represented that the cause of Julia's illness was the violent outburst of displeasure of her father at the time he first discovered the friendship existing between her and the young lecturer; and, further, that Sammy was actually engaged to little Miss Millward. As neither of these stories need to concern us, we will dismiss them as merely rumors of passing interest. One thing is certain, Sammy is no less attentive to Julia.





CHAPTER XIV.

CARS, STEAM-BOATS, AND PLANETS—THE DEDICATION OF THE NEW DISPENSARY—THE ADDRESS OF SAMMY'S PRECEPTOR—HE SPEAKS OF THE TRUE QUALIFICATIONS OF THE PHYSICIAN AND TELLS HOW DOCTORS MAY BE ABOLISHED—THE LAST SAD LOOK AT SPONSIE—HIS BODY DISSECTED—THE UNEXPECTED DISCOVERY.



O one who notices the everyday occurrences of life, and reflects upon their strangeness, it seems remarkable that a person may retire to rest at night in the section of a sleeping car or in the stateroom of a steamer in New York, and awaken in the morning in some remote city hundreds of miles away. It is no less so that we retire during the darkness of night and awaken in such a different position in the realms of space as to open our eyes upon the dawning light of the east towards which





our planet is constantly revolving. During our nappings in the cars we are unconsciously passing towns full of people, and by the lights of innumerable dwellings and street lamps ; and during our sleep in our own houses, we are passing by other worlds full of beings, and by the twinkling lights of other planets, as our own moves through space at greater speed than any of the wonderful inventions of men move over land or water.

While our young gymnast slept after the varied and exciting events of the previous day, Mother Earth was hastening him around to new experiences and further surprises. And as the impatient traveler arises from his pillow in time to greet the far-off church spires of his place of destination, so our ever-active Sammy arose in time to welcome the first rays of the morning sun, which signalled his approach to another day. This was to be the opening day at the new Dispensary. The Gymnasium and Lecture-room had each been dedicated. It remained to dedicate the new Dispensary. Doctor Hubbs is to deliver an extemporaneous address on the occasion. After breakfast, Sammy proceeds to perform his morning office duties and the Doctor to make his professional calls. At 9.45, the Doctor, Mrs. Hubbs, and Sammy, set out for the Dispensary. As they turn the corner at 7th Ave. and 27th St. they meet Doctor Winkles, who is also on his way to the same place. Before they



reach the Dispensary they are overtaken by old Mr. Johnson, who comes up puffing from his rapid walking. The old gentleman is too fat for speed. As they enter the Dispensary, they find that nearly all of what has come to be called the white folks party present, and the place crowded with



DEDICATION CEREMONIES AT THE NEW DISPENSARY.

those who are in the habit of attending Sammy's lectures. Promptly upon the entrance of Mr. Johnson the meeting is called to order, and Mr. Goodlove is called upon to preside. As the latter takes his place upon the platform, which Mr. John-





son had caused to be brought down from the lecture-room, he proceeds to say that he believes that nearly all our miseries in this world are the results of our ignorance, while our gracious deliverance from them is due to a merciful Father who has filled the woodlands and fields with the antidotes for our physical ills, and placed within the reach of aspiring souls light which will banish our moral infirmities. To be placed within the knowledge and influence of these helps, he impressively added, "we will invoke the Divine Blessing."

At the close of the invocation, the organ under the experienced touch of Mr. Goodlove's daughter gives additional impressiveness to the occasion, for this instrument has also been brought from the lecture-room to contribute its part. Mr. Johnson takes great pride in having everything with which he has to do, so managed as to produce the best possible effect. The early hours of the morning had been occupied by Mr. Johnson and some of the male members of the Tubbs family in transferring from the apartments above to the Dispensary below everything needed for the dedication ceremonies.

As the silver-tongued voice of the organ sweetly dies away upon those nerves of the ear which you remember are called the fibres of Corti, Mr. Goodlove arises and remarks, that it is hardly





necessary to introduce to the audience the well-known preceptor of the Gymnast and teacher, for his face is almost as familiar to them as that of the gifted pupil. A deafening round of applause so drowns the voice of the speaker at this moment that a few additional words are not intelligible to the ear. As Mr. Goodlove turns to Doctor Hubbs, the latter comes forward, and, before the first manifestations of delight have quite subsided another loud outburst of applause arises and continues for some moments.

Doctor Hubbs who is, as a matter of course, a great favorite of Sammy's admirers, first thanks them for his enthusiastic reception and then proceeds to speak of the blessings which the new Dispensary will doubtless confer, under Sammy's skillful management, upon a class of people who cannot afford to pay the usual professional fees of first-class physicians.

"Although," he remarks, "Master Sammy is only just about to enter a regular course of medical instruction, at a medical college, he is already better prepared for the practice of medicine than thousands who have by the help of good memories rather than practical, analytical and discriminating minds managed to pass the ordeal of the 'quiz' and the final examination. I would not," he says "speak lightly of the advantages of a thorough college course, but I will say, that it is impossible





to eliminate from the medical profession unskillful and unworthy practitioners by any educational test. There are quite as many blockheads, and, I am sorry to add, unprincipled charlatans among those who have passed through a university course as there are among those who have risen by their own unaided efforts, and I will make bold to say that there are as many successful practitioners of medicine among those who cannot answer the technical questions of the text-books, as among those who have spent the best part of their lives in medical universities as students or professors. Medical colleges do not make physicians. A diamond is a diamond before it is ground. The manipulations of the artisan simply impart to it its greatest possible brilliancy, A man or a woman who has the natural qualifications to administer to the sick, may make a good nurse, or with close observation and self-preparation a successful physician, without the advantages which a college course affords, while all the colleges in Christendom cannot make a skillful doctor of a dolt, nor even indeed of the bright student, unless he possesses qualities of mind which peculiarly fit him for intuitively perceiving the true nature of disease, and the strong common sense as well as knowledge to select the appropriate remedy." [An outburst of applause, during which Doctor Winkles wriggles uneasily in his seat, for he has often combated the liberal views





entertained by his professional brother, Doctor Hubbs, on this subject.]

"I will vouch for Master Sammy," resumed the speaker, "as fully capable of taking the management of this Dispensary, for I have had ample opportunity in my office of testing his excellent judgment and native skill. [Applause.] Nevertheless, I am greatly pleased with the advantages which are opening before him for perfecting his medical education, and I have no doubt that the liberal institution he is about to enter will still better prepare him for the discharge of the duties of a careful and conscientious physician. [Applause, in which Doctor Winkles leads off.]

In my judgment, however, the work of Master Sammy in the class and lecture-room will prove of more value than his labors in this Dispensary. To teach you how to avoid disease is worth more than medicine to you when you are sick. To teach you how to bring children into the world free from disease is a step still further in advance. It gives me great pleasure to observe the interest which you are all taking in the private lectures which are being delivered by Master Sammy in this building. It would be absurd to expect that a mechanic could turn out a well-finished job of work with defective tools. What kind of a book-case, for instance, could a cabinet-maker construct with a broken saw, a nicked plane and a screw-





driver which is loose in its handle? [Laughter.] It is equally absurd to suppose that healthful and well-balanced children can be born of parents who, by ignorance, neglect or abuse, have allowed their procreative organs to become diseased. [Applause.] The silence which has been imposed upon the medical profession and upon physiological teachers, regarding these most important organs of the human body, has kept the masses in ignorance, and this ignorance to-day is the main source of the physical ills which bring fees to the pockets of the members of our profession; for not only do those having diseases of the procreative organs themselves suffer, but with defective instruments they bring into the world children that sooner or later must fall into the hands of the physician. [Applause.]

“It is not too much to say that the moral as well as the physical redemption of the human race mainly rests upon a proper understanding of the procreative machinery and the subtle laws governing reproduction. Everybody has heard of the Pomeroy boy who delights in murdering his comrades. The papers inform us that while Jesse Pomeroy was in the egg, as my young friend Sammy would explain it, his mother daily visited her husband's slaughter-house to witness the killing of animals! This wanton pastime on the part of the pregnant mother made its impression upon





the developing brain of the unborn Jesse, so that when, after his birth, he came to have the voluntary use of his hands and feet, his peculiar mental constitution led him to the wanton destruction of the lives of his little companions. A girl of only fifteen confesses to the insane desire to burn babies! Physicians have not, as I am aware, in this case, as in the other, inquired into the conditions under which she was conceived and developed in the egg; but doubtless, investigation would prove that they were those which, had the mother known better, would have saved her child from the morbid impulse for burning babies.

"There are laws governing the birth of General Tom Thumbs, Commodore Nuts, Admiral Dots, etc. etc. which, were they understood, could populate a city or a nation with just such pigmies, or what is better, avoid the birth of such monstrosities in any instance. It may not be too much to say that all monstrosities, physical and moral, are the results of ignorance of the laws governing the important functions of procreation. You who have had the pleasure of listening to Master Sammy's lectures upon the brain," continued the Doctor, "doubtless remember that in Professor Buchanan's chart of the Outlines of Sarcognomy, the region of Insanity is located in that portion of the trunk of the body occupied by the procreative organs. This region, without question, is the point of ter-





THE TROUBLESOME MONKEY.

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mination of a large number of nerve-fibres having their origin in those organs of the brain which are the seat of the passions and emotions. Either exces-



THE MONSTROSITIES OF THE SHOWMAN.

sive exercise or non-use of the physical and mental organs at either end of these connecting nerve-





telegraphs, leads to morbid and diseased conditions. In a practice of over twenty years I have yet to meet a case, male or female, in which the procreative organs are diseased, that has not presented at the same time some peculiar abnormal mental conditions. In some, it is peevishness and melancholia; in others, an eccentricity bordering on lunacy; in many, apprehensiveness or painful fear of impending evil; in no small number, a disposition to take their own lives; in a very large number, bad temper and excessive irritability; and in the worst cases, symptoms of dementia or idiocy. Now, when it is considered that diseases of the procreative organs affect the mind of women as well as men in these various ways, and further, when you remember how greatly the mind of the mother influences the character of the child in the egg, how can it be reasonably expected that adults can bear well balanced and healthy babies when children are left in ignorance of the care which they ought to bestow upon those organs which are in the future to enable them to become fathers and mothers? The mischief is done before they reach the childbearing age! [Applause.] While the fathers and mothers of to-day are rapidly learning and bitterly regretting their own follies, their knowledge and their repentance will bear but worthless fruit if they do not duly caution and instruct those whom they are raising up to fill their





places." [Applause, in which the ladies as well as the gentlemen present enthusiastically take part.]

In conclusion, the Doctor said that, "in the present condition of the human race, doctors and medical dispensaries are a necessity—a necessary evil," he added, after a pause, with a humorous twinkle illuminating his good-natured eyes. "When the world is wiser we shall be abolished!" [Laughter.] But just now this beautiful Dispensary with Master Sammy at its head will doubtless do a great deal of good for the poor and suffering. I congratulate you all, my friends, upon the successful completion of my venerable friend Mr. Johnston's enterprise in all its departments, and I congratulate Master Sammy that his dream of a few years ago has taken such substantial shape as we are here permitted to see in the well-appointed Gymnasium above with its surrounding work shops for honest but indigent toilers." [Applause.]

Sammy was loudly called for as Doctor Hubbs was about taking his seat, when the former playfully came forward and said that he supposed that the audience only wanted to catch a glimpse of the curiosity who was about to enter college to prepare himself by three years of hard study to become a regular legally authorized "necessary evil!" [Uproarious laughter, during which the Young Gymnast stole back to his seat.]

Mr. Johnston followed with a few humorous re-



marks which kept up the hilarity for a time, after which, Mr. Goodlove made a little closing address and dismissed the audience.

Nearly all of Sammy's immediate friends stopped at the house of the Tubbs' after leaving the Dispensary to see the remains of poor Sponsie which



LOOKING FOR THE LAST TIME ON SPONSIE.

lay in the stillness of death on the laundry table. Some of the younger ones joined with heart-broken Esther in weeping because their mischievous pet of former times could not respond by knowing looks and actions when his familiar name





was called. Sammy could scarcely restrain his tears, for notwithstanding the fact that he had outgrown his companion of former years as many a boy had outgrown his pictorial primer or toy drum, he could not feel quite reconciled to the idea that he could never again see the little fellow animated with life ; besides he knew how much pleasure his sister Esther and her companions had derived from the cunning tricks of the little animal ; and if he could not himself spare the time to watch the amusing pranks of Sponsie, Esther could. To her he was all that he had been in times before to Sammy.

One by one the visitors left the laundry till only the Doctor, Sammy and Esther remained. Mrs. Hubbs had gone home with Mr. Goodlove and his daughter who only stopped for a moment. The Doctor and Sammy stayed for the purpose of removing the skin of the animal with the view of having it stuffed for the library. Esther was persuaded to leave the room and Sammy proceeded, aided by his preceptor when necessary, to do the work they had in hand. After the skin had been removed they made a partial dissection of Sponsie's body when they came upon the scars caused by the bullet wound at the time of the tragedy in Shin-bone-Alley.

" See ! see this cicatrix !" exclaimed Sammy.

" Why ! that was, when inflicted, a very severe





wound," responded the Doctor with an expression of surprise as he examined the parts more closely. "It was sufficient to have destroyed at the time the power of retaining the waste matters of his bladder and rectum. I wonder when and how he received it! Certainly not while he has been in our possession."

"May it not have happened?" inquired Sammy speaking slowly as if trying to recall all the circumstances, "when our first Sponsie and Old Blücher were killed?"

"May be," answered the Doctor, as he proceeded to trace by the track of the scar the direction which the missile must have taken.

"It's all clear to my mind now!" exclaimed Sammy after a moment's pause. "Don't you remember that that Italian woman said through her interpreter that the monkey was a nasty thing till she whipped him and made him decent!"

"I do, now you speak of it," replied the Doctor, "but I thought the woman was telling a downright falsehood. The seeming absurdity of the statement was one reason why I showed the woman and the boy the door so summarily. But I guess she told the truth. What a cruel thing though to whip the little fellow for something he could not help!" The Doctor then went on to speak very much as the narrator has done in a previous chapter of the cruelty of punishing





children for what are called "uncleanly habits," when these habits are in almost every instance the result of disease. "The missile, whatever it was, did not lodge in his body" said the Doctor, as he straightened up from the examination. "Probably," he added, "the same bullet which killed Blücher first passed through the body of this animal." The autopsy concluded, the remains of Sponsie, excepting his skin and head, were placed in a little plain coffin which Sammy had caused to be made, and the Doctor and his pupil repaired to their office, leaving Esther and a younger brother to perform the duties of undertaker.





CHAPTER XV.

DOCTOR WINKLES ANNOYED—DOCTOR HUBBS EXPLAINS—A FULL KNOWLEDGE OF THE HUMAN SYSTEM SHOULD BE TAUGHT IN OUR COMMON SCHOOLS—THE WHOLE TUBBS FAMILY UNDER ARREST—THE TWO DOCTORS AND SAMMY FLY TO THEIR RESCUE AND ARE THEMSELVES MADE PRISONERS.—SPONSIE'S RULING PASSION STRONG IN DEATH.



WHEN the Doctor and Sammy reached the office, they found Doctor Winkles there awaiting their return. The latter had of late been laboring, together with other conservative members of the profession, to have a State Board of Censors created for examining and licensing those who should set themselves up as doctors of medicine, and he seemed to think that a portion of Doctor Hubbs' remarks at the Dispensary were intended especially for





him. "It seems to me," he said, "you meant to be personal."

"I never thought of such a thing, Winkles," exclaimed Doctor Hubbs, exploding with laughter, "till I saw you twisting about in your chair as if you were sitting upon a cushion of thistles, and then I at once, as you must have noticed, changed the subject. I desired to say a good word for Sammy's present qualifications in view of the fact that he was just about to enter, for the first time, a medical university at the same moment he was assuming the head of the new Dispensary as its attending physician."

"Well, everybody knows that Sammy could pass a pretty searching examination and receive a license, if the board for which I am laboring were already in existence."

"I am not so sure of that," replied Doctor Hubbs, "in view of the variety of prejudices which are liable to influence such a board. If it were constituted of those who call colored people 'niggers' the boy might be put to a severer test than if his skin were some shades whiter. Then again, it would depend upon the professional complexion of the board. Sammy you know is an avowed Eclectic, and if the board were constituted of old-school practitioners they might take pleasure in 'plucking' him; if homœopathic, it would be necessary for him to understand the theory and practice





of Hahnemann, etc. But even if a board could be impartially organized of physicians taken from the various schools there would still be great liability of an abuse of its powers, such are the shameful envies, jealousies, and often personal prejudices existing among the members of our profession. Finally, if all these could be avoided, it would certainly be a great hardship for old practitioners who have been away from their colleges and books for twenty or thirty years, to be called before a board of examiners and questioned according to the most recent text-books, or even according to those they so long ago studied, for every practitioner soon becomes what is called 'rusty' in that which he has acquired from books. He uses his books as stepping-stones to practical knowledge, and then they soon become moss-grown."

"Then you would do absolutely nothing to relieve society of quacks and pretenders!"

"Indeed I would. I only object to a method which removes the wheat as well as the smaller tares, while the rank weeds of the profession are left untouched. The examinations of your proposed board would not eliminate unskillful practitioners whose undeniable culture would enable them to pass a rigid examination (and our profession is crowded with just such impracticable scholars), while it would take out of our profession men of valuable natural attainments, whose ser-





vices are greatly valued by those who employ them. If your ideas were correct, our most prominent scientists like Huxley, the late Von Humboldt, and our own revered Agassiz, would be the proper ones to call to the sick-bed, while, to tell the truth, I would rather have a good woman nurse, and I say this with all due recognition of the acknowledged abilities of gentlemen who have deservedly acquired a world-wide fame as physicists. In every department of life there are those who bring to the discharge of their duties qualifications which are not derived from teachers or books. One of our best journals, speaking in an obituary of a deceased journalist, said—‘He entered the class of 1862 at Harvard, and impressed his classmates and teachers with a sense of unusual power.’ And, now, notice, here is the point: ‘As with many able men, perhaps with most able men in college, the impression which he made *was superior to what his rank in the college books would have justified.*’ Still this man was a hater of shams and in the language of the same biographer—‘it was a real offence to him that a man should attempt a task for which he had not prepared himself, or engage in a business for which he was not trained.’

“Now let me tell you,” said the doctor, growing more and more earnest, “what I would do. I would have anatomy, physiology, chemistry and





botany taught in all our common schools. Educate the masses, and they themselves will be able to discriminate between the real and the sham, and then, too, those who rise to the profession from the ranks of the people will possess all the elementary



MACDONALD'S MODEL OF THE
SKELETON.

and text-book knowledge necessary to start on a medical career, to which those specially endowed by nature would gravitate, and so absorb the patronage which falls to the profession as to starve out the unskillful. The text-books for the common schools I would so revise as to have them take in and explain all the organs and functions of the body, not omitting those through which humanity enters the world. Just now, Mr.

Wilson Macdonald, the sculptor and anatomist, is engaged in perfecting a set of models, one of which will represent the human skeleton; the second, the external muscles, cords, ligaments and bones; the third, the internal organs as they exist in their proper locations and relations to each other, these being exposed by the





removal of the superficial muscles; the fourth, a bust so constructed as to expose the brain, muscles of the neck, breast and back; and lastly, the fifth, a perfect female figure; all the organs and parts of these various models being labeled, so far as practicable, with names familiar to the English ear and pronounceable in the mother tongue; and the whole set to cost not to exceed the moderate sum of one hundred dollars. At so small a cost, considering the benefits to be derived from the possession of such a set of models, every school in the land, instead of not being able to purchase it, could not afford to do without it. With such models, and with revised primary textbooks in our schools, the people themselves will constitute the best board of censors whenever any one of their number aspires to the honor of being called a doctor of medicine."



MACDONALD'S MODEL SHOW-
ING THE MUSCLES.

"All you say is very true, friend Hubbs, and may, in the far-off future, accomplish the desired end," replied Doctor Winkles; "but I want to





apply an effective scalpel to the evils of to-day—”

“And thereby place in the hands of some envious, jealous, or vindictive professional brother, the weapon with which to cut your own throat,” rejoined Doctor Hubbs, with a sarcastic smile.

Just as this sentence was finished, and the Doctor was about to add something further, the conversation was interrupted by three successive and excited jerks at the bell-knob. Without waiting for Biddy, Sammy instantly flew to the door.

“Our house is chuck full of policemen!” exclaimed Esther, who stood trembling with fear on the door-steps. “They say as how as Sponsie is a part of a dead baby, and that some one has murdered it!”

“What’s that?” interrogated Doctor Hubbs, hastening to the door.

Esther nervously repeated what she had told Sammy, and burst into tears, for her affrighted imagination was filled with the descriptions she had read of the horrible cells at the “Tombs,” and she was afraid the whole family would soon be put into them.

The two doctors and Sammy grasped their hats, and, accompanied by the affrighted Esther, set out with rapid steps to the home of the Tubbs. On arriving there, sure enough, they found one policeman guarding the front entrance, and another the back door, to prevent any of the mem-



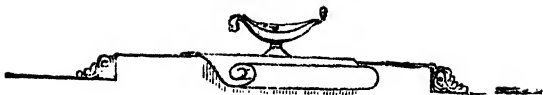


bers of the family from going out, and a third one in the laundry keeping watch over Sponsie's coffin, in which the mangled remains of what was supposed to be an infant had been discovered by one of those vigilant guardians of the peace. Still a fourth one had gone for a coroner!

As soon as the two doctors entered, and they were found to be physicians, they were instantly placed under arrest, in spite of their reasonable explanation of the whole matter. The policemen had allowed Esther to go for the "Doctor who could tell them all about it," because they suspected that he had been in some way connected with the commission of the crime. When the strategy resulted in the capture of two suspected disciples of *Æsculapius*, they were in high glee.

Doctors Hubbs and Winkles, finding that no explanation would satisfy the resolute men, sat down in what used to be Sammy's Dispensary, to await the arrival of the coroner, who they hoped would be sufficiently acquainted with comparative anatomy to accept their statements after examining the contents of the coffin. Sammy was dispatched upstairs to quiet the members of the family who were so greatly alarmed as to make the house echo with their lamentations. In a few moments silence was restored by the assuring words of our young gymnast. He was not in the least degree frightened—only excited and annoyed





that the whole family, and the two doctors beside, as well as himself, were for the moment prisoners under guard.

"This is a funny experience!" remarked Doctor Hubbs to his friend Winkles. "It seems as if Sponsie's 'ruling passion was strong in death.' He was always getting some of us into a scrape when he was alive, and now that he is lying stone dead, he is involving us in a novel perplexity! Nor has it taken the whole of him to do that, for his head and skin are over at my house!"

"Well, I am glad," replied Doctor Winkles, "that the officers of the law are on a sharp lookout for suspected cases of foeticide and infanticide," by which terms are meant the destruction of the human egg after its impregnation, and the destruction of babies by direct or indirect means after they are born.

"And I too," responded Doctor Hubbs, earnestly. "All laws enacted with this view have my most hearty approval; but I think our lawmakers transcend the bounds of economy and humanity, when they prohibit the members of our profession from devising means to prevent the union of the germ-cell and sperm-cell in cases where the product is almost certain to be a diseased or immoral person. To hasten the moral and physical redemption of the human race, all married people having incurable diseases, or in-





compatible tempers or temperaments, and all immoral persons, should be provided with knowledge and means for avoiding the cell-union" (or impregnation of the egg). "We do not want their fruits. Their offspring is a curse to itself, to themselves, to society, and to the State. John Stuart Mill said a wise thing when he remarked that 'the fact itself of causing the existence of a human being is one of the most responsible actions in the range of human life.' "

Doctor Winkles listened as if he had no opinion to express on the subject, and Doctor Hubbs went on to say :

"The attention of Doctor Harris was called not long ago to a county on the upper Hudson, which showed a remarkable proportion of crime and poverty to the whole population. On investigation he found that two hundred criminals had descended from one badly-organized woman by the name of 'Margaret,' who settled in that county some seventy years ago. The whole number of her descendants through six generations was nine hundred, among whom, beside the two hundred criminals, were a large number of idiots, imbeciles, drunkards, lunatics, prostitutes, and paupers ! What do you think of that ? "

"It seems almost incredible," replied Doctor Winkles, "but if Doctor Harris has said this, I must believe the statement to be true."



"To my mind," resumed Doctor Hubbs, "it is a grave question as to what are to be the ultimate effects of sending the waifs of our criminal and



WHY SCATTER THE SEEDS OF SUCH HUMAN WEEDS?

pauper population to homes in the country. The Society having this apparently laudable work in





hand, are undoubtedly acting under the best of motives, and they are scattering them broadcast over the land. These little unfortunates will doubtless be improved to some extent by education, and the restraints of better surroundings; the best of them may turn out well, and in time raise up creditable offspring; but how many of them may do as 'Margaret' has done, and fill their new homes with descendants as depraved as their ancestry? It seems to me this scattering of bad human seed is worse in its results than if our Agricultural Bureau at Washington should send out to all the farmers in the land the seeds of Canada thistles and other pestiferous weeds."

"Well, what would you do with them?" muttered Doctor Winkles, who, from impatient waiting for the Coroner, was hardly in a mood to discuss reformatory questions with much spirit or interest.

"I admit that that is a difficult question; I am not prepared to answer it," said Doctor Hubbs. "But if any way could be devised to prevent them from further peopling our planet, it should be adopted. If our profession were encouraged to devise and prescribe preventive measures, I think they would be largely employed by the criminal classes, for their progeny is not so much the product of their love of offspring for its sake, as it is the result of unrestrained passion. Ignorant of any physiological law or of any means of preventing





the impregnation of the ovule or egg, their **pas-**sional excesses not only impair their own moral and physical powers, but fill our towns with paupers, sicklings and thieves. The children of these classes number some four thousand in our (N. Y.) city reformatory institutions, to say nothing of the many thousands more who ought to be thus taken care of. Philadelphia is said to have its twelve thousand vagrant children, and in every place of any size they exist in swarms, while in every small town there is some human stock, which should by no means be propagated. Then, why should those among the better classes who are hereditarily consumptive or scrofulous, predisposed by inheritance to insanity, and the great army of cripples and dyspeptics be allowed to make their ills and deformities perpetual through the process of reproduction? If," said the Doctor, warming with his subject, "our Legislature would offer prizes for the best means for regulating human reproduction, instead of passing laws for the purpose of restraining the profession from all investigation in this direction, they would, by so doing, promote the peopling of our planet with better specimens of humanity, and give to the community better timber from which to make law-makers than any community now contains. If, indeed, we are enabled to make some wonderful strides in the arts and sciences now, while the human family is so carelessly pro-





pagated, what might we not expect if due attention were given to the gateway through which every human being comes into this world, so that none but the moral, ingenious, healthy, philosophic and scientific should enter ? ”

At this juncture a rustling is heard at the front door, and it is announced that Coroner Quirk has arrived. As he passes through the hall with two or three other burly persons who accompany him, he is joined by the two doctors, and Sammy, hearing the tramping, descends the stairs quickly. All are soon in the laundry, the policemen bearing a triumphant air as if they had discovered the little victim of a horrid crime, and had furthermore captured the doctors who were concerned in it.

With a brusque manner, the short thick-set man who was said to be the Coroner, quickly removed the screws with which the attending policemen had fastened securely the cover of the little plain coffin, and after rudely tipping out its contents as if it had been a box of offal, and looking it over for a few moments he exclaimed :

“ It’s a monkey—nuthen but a monkey ! Do you,” turning to the two doctors, “ know anything about this ? ”

Doctor Hubbs was only too glad to avail himself of this invitation to step forward and repeat the story which he had unavailingly told the unbelieving policemen. After telling the Coroner of the





autopsy, he proceeded, as if to confirm the story, to give him a brief biography of the little fellow who once animated the remains he had been called to examine. As he did so an irresistible smile lighted up the austere features of Coroner Quirk, and this gradually ignited the humorous faculties of the still sterner policemen, and soon the men who had turned a deaf ear to the Doctor's story, accepted it as a satisfactory explanation of the supposed mystery, and all left the building laughing heartily. Set at liberty, Doctors Hubbs and Winkles were glad of the opportunity of hastening directly to their offices to meet professional appointments, leaving Sammy to prepare the troublesome remains of the troublesome monkey for a decent burial.





CHAPTER XVI.

CONCLUDING CHAPTER.



GAIN we find ourselves at the close of a volume, bereft of one of its principal characters. More than that, Sammy is becoming too much of a man, to be called a boy, or even a "Boy Doctor." How, then, can we commence another volume with the title of "Sammy Tubbs, the Boy Doctor, and Sponsie the Troublesome Monkey?" Development, both mental and physical, has translated the former to the verge of manhood. Death has borne the latter back to Mother Nature, from one of whose ova he sprang after passing through those marvelous changes, peculiar to the impregnated mammalian egg. Sammy's secretory tissue still lives, and will doubtless go on developing its inherent possibilities. Sponsie could hardly have made more of himself than he had already achieved; a grand future lies open before his young master.



Let us, then, be content if this series ceases to chronicle the steps in Sammy's progress, for he lives to speak for himself. You have doubtless had to study hard to keep up with him. Some critics may say that the matter of this volume is quite too advanced for young people. But if you

have read attentively, the pages of the four preceding volumes, you are prepared to peruse and easily digest this concluding one. It manifestly would not do to commence with this volume and read the series backward. It is by measured, successive steps that we climb a mountain, and it is by gradual steps, that we come to comprehend all which we strive to learn.



ADIRU.

"Know thyself!" is a trite adage. The author hopes that at the conclusion of this series, you have obtained a pretty good knowledge of yourselves. There is much yet to learn. The more you acquire in the way of knowledge, the clearer will be your vision in discerning how much yet lies before you to study and to know. With all that Sammy has learned, he is





but entering upon the threshold of knowledge He is just about to commence a course of systematic study. The programme laid down for him by his friends, is briefly as follows: Dispensary hours, from 8 till 10 A. M.; hours at College, from 10.15 A. M., till 4 P.M.; recreation from 4 till 5; study, from 5 till 6.30; Gymnasium hours with class in physical exercises, every alternate evening, from 8 till 9.30; hours for teaching his class at the Lecture Room, on the intermediate evenings; Lectures to be discontinued, excepting when he chooses to substitute an entertainment of this kind, for the regular class exercises.



GOOD-BYE.

This, you will all say, "looks like business," and so it does. But recreation and physical exercise are so interblended with mental labor, and, further, so guided by a well informed mind, there is hardly a question but that Sammy will be able to make the programme a perfect success. He enters upon its fulfillment on the first day of October. Doctor and Mrs. Hubbs,





have hospitably extended to him a home with them during his student-life, and they have at the close of this narrative, stepped before you to bid you, my dear readers, good-bye. Old Mr. Johnson has kindly consented to continue to be his cashier, and supply him with the necessary means for defraying his incidental expenses. You will extend your grateful hand to this good old man, who has been such a generous friend to your friend Sammy. Indeed, the latter is to continue to receive the ten dollars per week, for his charitable services at the Dispensary.

Young Diggles may well envy our Young Gymnast. He thinks that his own natural capacity is equal to Sammy's ; but in this he is greatly mistaken. If he has vainly coveted Sammy's opportunities, they would not, could he have enjoyed them, made him what our Young Gymnast has become. His secretory tissue may have the capacity to give him equal physical development, but had the circumstances of the two been reversed, Sammy would have nevertheless beaten him in the contest for knowledge. Poor " Louis Napoleon " still remains just where our story found him. He is still Dr. Winkles' usher and errand boy, and has acquired sufficient tact in handling the reins, to hold the Doctor's horse, when his employer is making a professional call. He still knows how to chew twine, and crack his knuckles. He attended





Sammy's class a few times, but failed to become interested. Among colored people, as well as among those of lighter complexion, under the present system of hap-hazard reproduction, some are born with, and some without brains.

Sponsie's remains have been interred. Esthe



and her little brother, aided by Father Tubbs and Young Diggles, raised the large flat slab of marble and, removing a sufficient quantity of earth, deposited the coffin containing the body of Sponsie Second, by the side of Sponsie the First, and Old Blücher. Here the bodies of all three of these





whilom pets, will undergo the changes in Mother Nature's laboratory, which will again raise their inanimate dust to clothe some new forms of life. She will lay claim to her own, and quietly, atom by atom, take their bodies away from under the stone which will be supposed by the uninformed to mark their resting-place. But the slab upon whose smooth white surface another name has been added, will nevertheless continue to serve as a fond memento to those who dearly loved them, when they responded by pantomimic and pathognomic signs to the names which are graven upon it. A new birth to their ashes !





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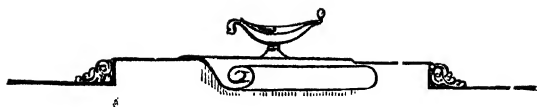


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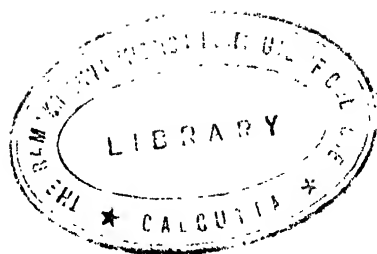
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